

THE MILLING WORLD

AND

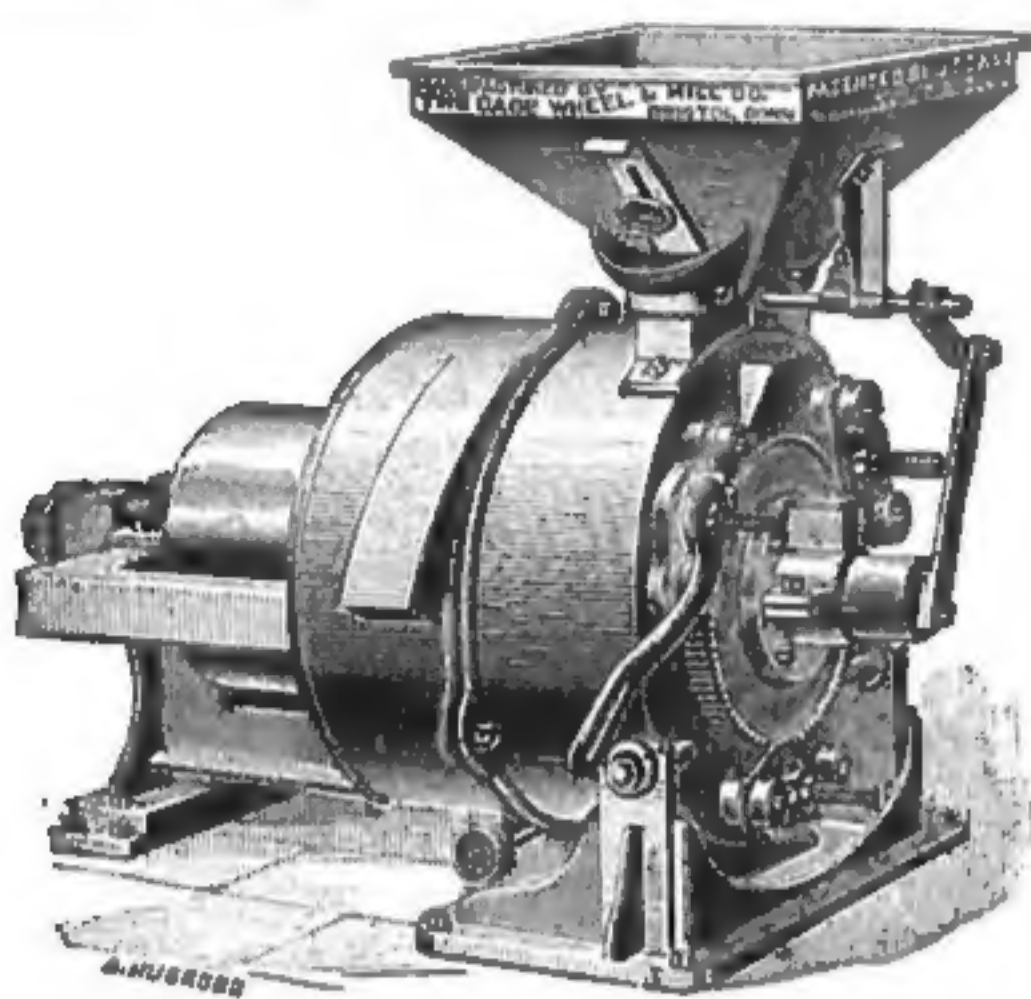
CHRONICLE OF THE GRAIN AND FLOUR TRADE

PUBLISHED EVERY MONDAY MORNING.

VOL. XIX. No 22.

BUFFALO, N. Y., JANUARY 28, 1889.

\$1.50 PER YEAR.



VICTORY OVER ALL OTHERS. SINGLE & DOUBLE VERTICAL GRINDING MILLS.

(J. T. CASE'S PATENT.)

FACTS ARE MIGHTIER THAN ASSERTIONS. READ WHAT THEY SAY:

"Our 20-inch mill made by the Case Wheel & Mill Co. is in every respect satisfactory, easy to handle, and best results obtained of any mill in the country, with same quantity coal and power."—A. S. RUSSELL & Co., Meriden, Conn.

"Superior to any mill in use."—Geo. WESTON, Bristol, Conn.

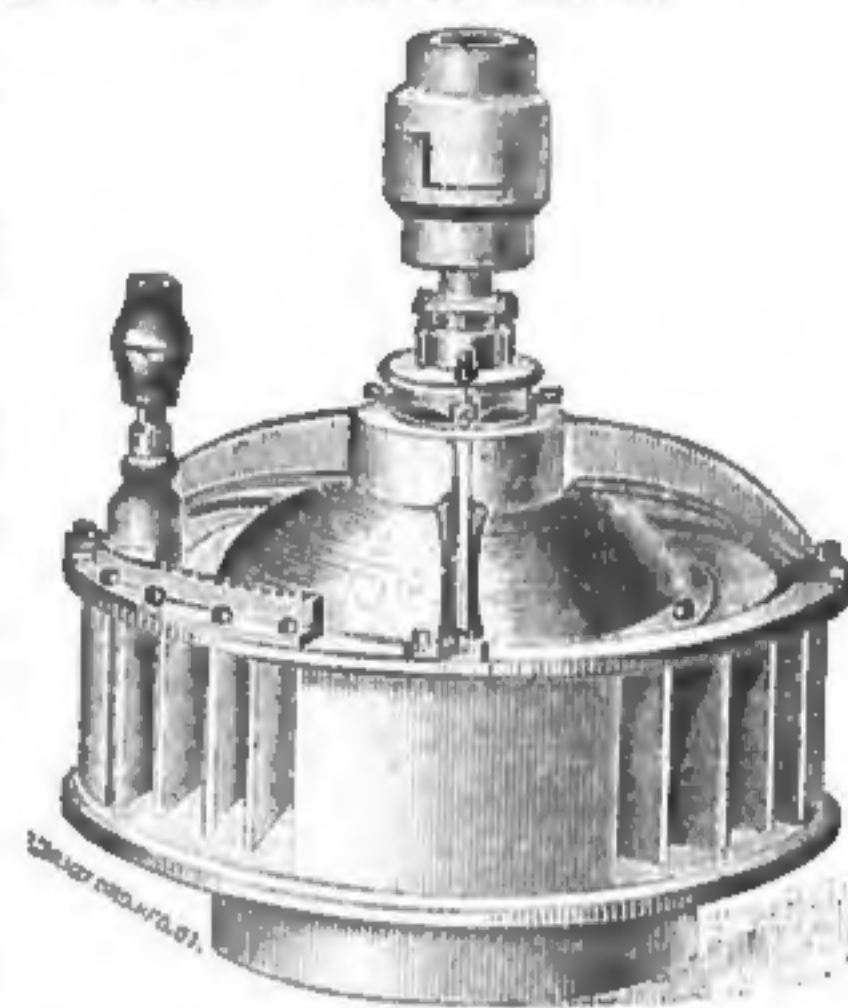
"The best satisfaction in quantity and quality."—CHILD'S ELEVATOR, Manchester, Ct.

"We take pleasure in recommending it."—GARLAND LINCOLN & Co., Worcester, Mass.

SEND FOR CATALOGUE—ILLUSTRATED AND DESCRIPTIVE.

The Improved National Turbine Water Wheel

The Best for Economy; The Best for Durability; The Best for Power. ONE THOUSAND FIVE HUNDRED NATIONAL WATER WHEELS IN USE Prove that our Assertions are Supported by the Leading Manufacturers in the Country. Send for illustrated catalogue and prices to the manufacturers.



The Case Wheel & Mill Co., Bristol, Conn.

NOTICE.

The J. B. ALLFREE CO., INDIANAPOLIS, IND., wish to inform their milling friends and the trade in general that they are prepared to build and equip throughout mills of any capacity in a style that can not be excelled. Bolting Cloth Trade a Specialty.

COMPLETE OUTFITS

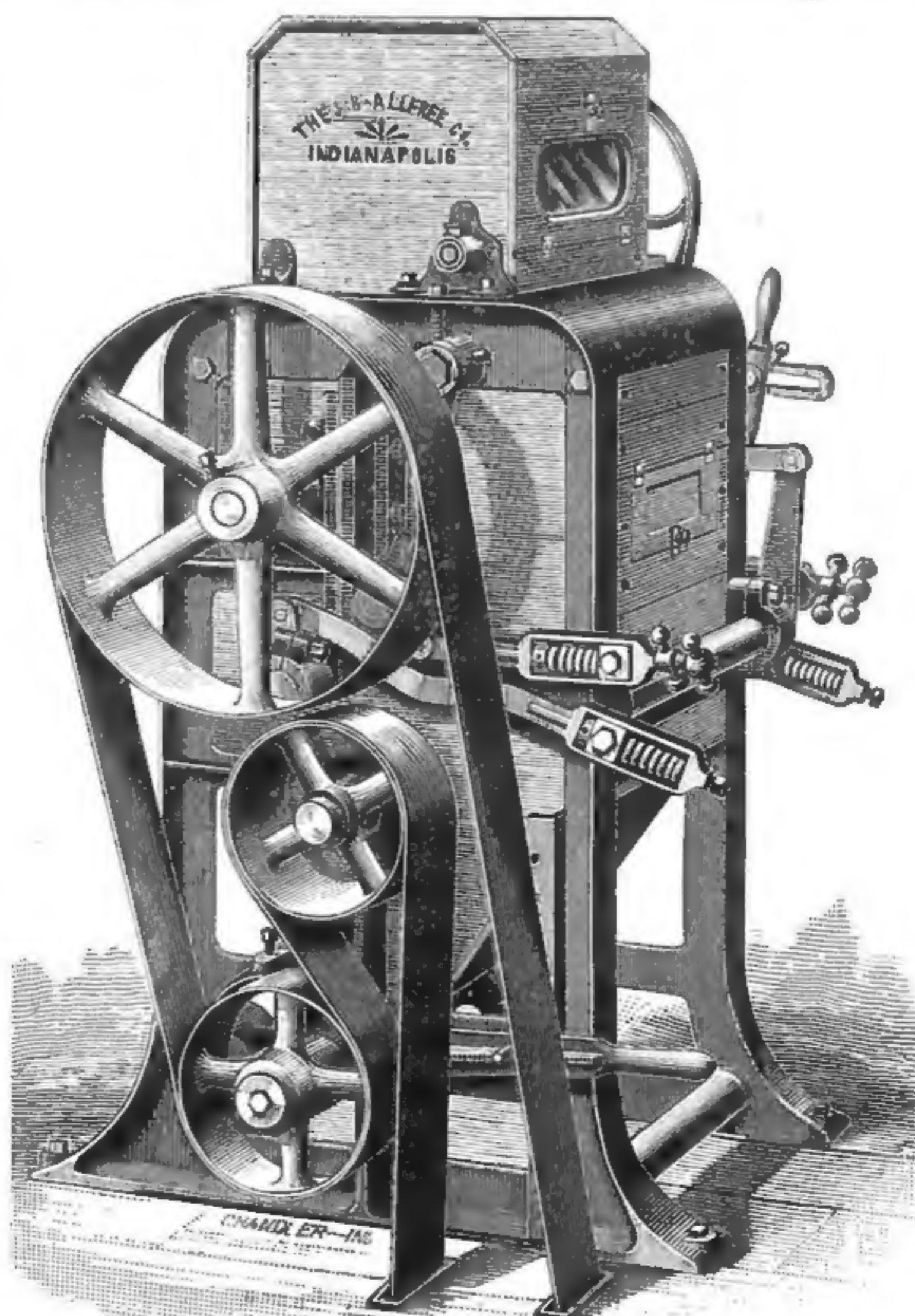
—FOR—

CORN-MEAL

—FURNISHED AT—

LOW PRICES.

Millers interested in Hominy and Germless Goods will do well to get prices from us on the Keystone Huller and Pearler.



—WE MANUFACTURE—

AUTOMATIC ENGINES.

The Keystone Four Roller Wheat Mill.

The Keystone Four High Corn Mill.

The Success Bolter and Dresser.

The J. B. Allfree Purifier.

The J. B. Allfree Sieve Scalper.

The J. B. Allfree Co.'s New Bolting Chest.

The J. B. Allfree Centrifugal Reel.

The Climax Bran Duster.

The Allfree Flour Packer.

The Keystone Huller and Pearler.

ADDRESS FOR ILLUSTRATED DESCRIPTIVE CATALOGUE,

The J. B. Allfree Co., Indianapolis, Ind.

RIGHT TO THE POINT

"The best laid plans o' mice and men
Gang aft a'glea."
But the Case Mill gets there every time,
So all the millers say.



"WE PUT IN A CASE SHORT SYSTEM MILL."

Old father Wise, with twinkling eyes,
Points backward to the well-filled till,
While Thrifty scans the new made plans
To double up the CASE SHORT MILL.



"WE DIDN'T!"

Old Shiftless weeps—the sick cat sleeps,
Doolittle has gone out to pray,
The spiders fill the empty till,
While hungry rats now hold full sway.

JUST TAKE A LOOK AT WHAT THIS MAN WRITES:

THE CASE MFG. CO., COLUMBUS, OHIO.

ELYRIA, OHIO, OCT. 10, 1888.

Gentlemen: Enclosed please find settlement in full of my account. The 4-break mill works splendid and am well pleased with it. The Inter-Elevator Flour Dressers are everything you represent, both in capacity and excellence of work. The Special Purifiers are a fine machine and far ahead of the Purifiers you put in my other mill in '83. Am especially pleased with the millwright work. It is well planned and finished in a good, workmanlike manner. I can not praise your millwright and his work too highly.

Yours resp'y,

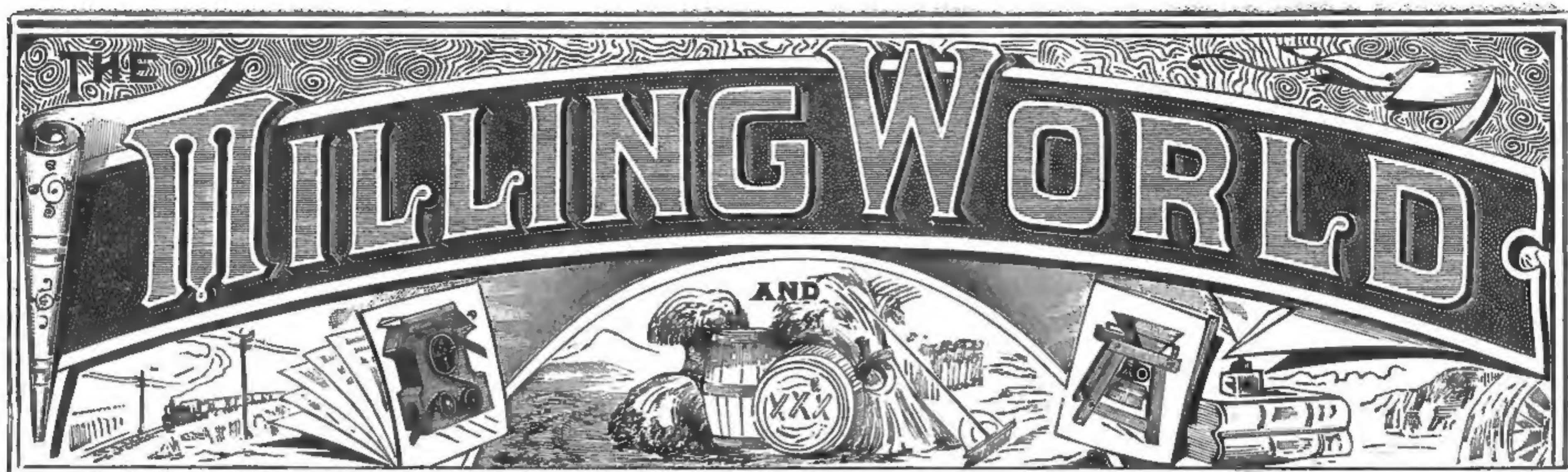
GARRET REUBLIN.

If you want a successful mill write us. Long System Mills remodeled on short notice. Case Short Break Corrugations put on any make of rolls. Our Roller Corn Mills are a most profitable investment. Now is the time to put one in your mill. Our Aspirator and Purifier for Corn Meal will astonish you. Belting, Gearing, Elevator Supplies, Silk and Wire Cloths shipped promptly on receipt of order. If you want mill supplies of any kind write us. Estimates on mills of any desired capacity furnished on short notice. Write us at once and state the capacity wanted and number of grades of flour you wish to make. The Automatic Feed on our machines makes them superior to all others. Catalogues and Circulars Mailed on Application.

RE-DRESSING ANY MAKE OF ROLLS PROMPTLY A SPECIALTY.

THE CASE MANUFG. CO., COLUMBUS, OHIO.

PLEASE MENTION "THE MILLING WORLD."



CHRONICLE OF THE GRAIN AND FLOUR TRADE
PUBLISHED EVERY MONDAY MORNING

VOL. XIX. No. 22.

BUFFALO, N. Y., JANUARY 28, 1889.

\$1.50 PER YEAR.

GREATNESS seems to be merely comparative, especially in the case of wheat crops. The London and other British journals continually refer to the "great wheat crop of Argentine Republic" as something remarkable. The crop of that country averages nearly 19,000,000 bushels a year, and it may be "a great crop," but it is surpassed by the crops of several States and Territories of the United States. Dakota in 1888, a year of short crops, yielded 38,036,000 bushels, Illinois 33,556,000 bushels, Ohio 28,705,000 bushels, California 28,451,000 bushels, Minnesota 27,881,000 bushels, Indiana 27,879,000 bushels, Michigan 24,038,000 bushels, Iowa 24,196,000 bushels; Missouri 18,496,000 bushels and Pennsylvania 18,802,000 bushels. If the "great crop of Manitoba," somewhere about 9,000,000 or 10,000,000 bushels, or more or less, as no one seems to know any thing about the yield of 1888, be taken into comparison, the word "great" shows more and more how much depends upon the standard of judgment.

MINNESOTA legislators are wisely providing to aid those farmers in the northern part of that state whose crops were ruined by hail and frost last season. The State Senate is at work on a bill appropriating \$100,000 for the purpose of furnishing seed wheat to farmers who need it. Applications for seed are to be made before March 1, through town clerks to county auditors; the largest allowance to a single farmer is \$100 worth of seed; the distribution will be made by county commissioners; the seed is to be refunded to the State, the obligation to refund being a first lien on the crop of 1889; the farmers are requested to sign an agreement to repay the State and to market enough of their crop as early as possible to make repayment. The counties specially mentioned in the bill are Wilkin, Otter Tail, Hubbard, Becker, Clay, Norman, Polk, Marshall, Kittson and neighboring northern counties. Care will be taken to furnish only the best varieties and the best qualities of seed. The move is a very wise one on the part of the State.

LET us laugh! A certain journal, published in the northwest by men who wrap themselves in impenetrable reserve, shroud themselves in blood-curdling mystery, cut themselves off from communication with their humble fellow-men, sling their togas over their manly shoulders, assume the position of Ajax defying the lightning or of other sorts of jacks kicking at the moon, and proclaiming aloud to the four or more corners of the earth their ineffable I-Am-ness, is out with the astounding announcement that the real reason why the real milling journals of the United States criticised the late Milwaukee millers' meeting somewhat freely is that the aforementioned ineffable, inscrutable non-milling journal originated that meeting! That's richness! It is rich even unto and over the verge of putrescence! THE MILLING WORLD has spoken fairly, freely and in the interests of all, without ever knowing that the Minneapolis amateurs really originated the Milwaukee meeting. We certainly should not conceive it necessary to take the wrong side of any question of morals or business expediency simply because a journal which we do not see has by mistake got on the right side of the same question. Is not the

northwestern journal making its conceit just a little nauseating? It is well enough, perhaps, for the average Minneapolitan to revel in his own ideas of his own enormous magnitude and importance, and to be so pleased thereby that he needs nothing else on earth to complete his happiness, but if the profane, irreverent, uninitiated, non-inoculated outside barbarian, who witnesses the grotesque self-adulation, vociferates "Rats! Chestnuts!" towards these self-throned and self-apotheosized individuals, that vociferation is pardonable. There is nothing quite so symmetrically funny in even the alleged funny journals of the land as the assumption of superhuman attributes by these Minneapolis persons. They are egocentric. They are, at the same time, nauseating, micromental, hebetudinous and rhomboccephalic!

A SERIOUS feature in American agriculture is the low yield of wheat, which, according to the report of the Department of Agriculture, was last year only 11.1 bushels per acre; winter wheat yielding something more, 11.6, and spring something less, 10.3. This is not much more than half the average of Ontario and not over one-third that of Manitoba and our North-West. These American returns reveal the fact that a great degree of exhaustion of the soil has been reached, and the time when wheat-growing, as now practiced, will cease to be profitable can not be far off, if indeed it has not already come.—*Monetary Times, Toronto.* Rot! The yield of wheat in the United States is misrepresented in all such figures. Here in New York the yield is 30 bushels and upward to the acre. So it is in Pennsylvania. So it is in Ohio, in Washington, in Oregon, in California and in other American wheat areas. The "averages" are reduced to 11 or less by including hundreds of thousands of acres that are not even cut, because of the damage done by bugs, frost, smut and other adverse influences. Our cotemporary would be unable to find a wheat farm in the United States yielding only 11 bushels to the acre. It would be unable to find in Ontario, Manitoba or any other Canadian province a yield of 33 or more bushels to the acre, except in isolated cases of thorough cultivation. If Manitoba is really capable of yielding 33 or 43 bushels to the acre, it seems not a little singular that her present crop, which should on that basis range from 20,000,000 to 30,000,000 bushels, has turned out a beggarly 1,500,000 or 2,000,000 bushels. It may serve Canadian interests to exaggerate in their favor and against American interests, and it may not. No sane man this side the border accepts the government figures as correct. They are "estimates" to a very large extent. Every miller, grain-dealer, flour-dealer and transportation agent in the country knows that the acreage reported is exaggerated, while the real yield is much larger than that reported. It is pure nonsense to prate about the exhaustion of American soil. The assumption that Canadians can make the same soil grow 33 bushels of wheat to 11 bushels grown by Americans is one of the foolish exaggerations that have done infinite injury to Canada. The immigrant may be deceived by that assumption, but one season in Manitoba generally convinces him that there are lies and liars the world over.

The Canton Cabinet Filing Case Company, Canton, Ohio,

MANUFACTURERS OF

The New Buckeye Document Case & Letter File; Also All Kinds Office Furniture



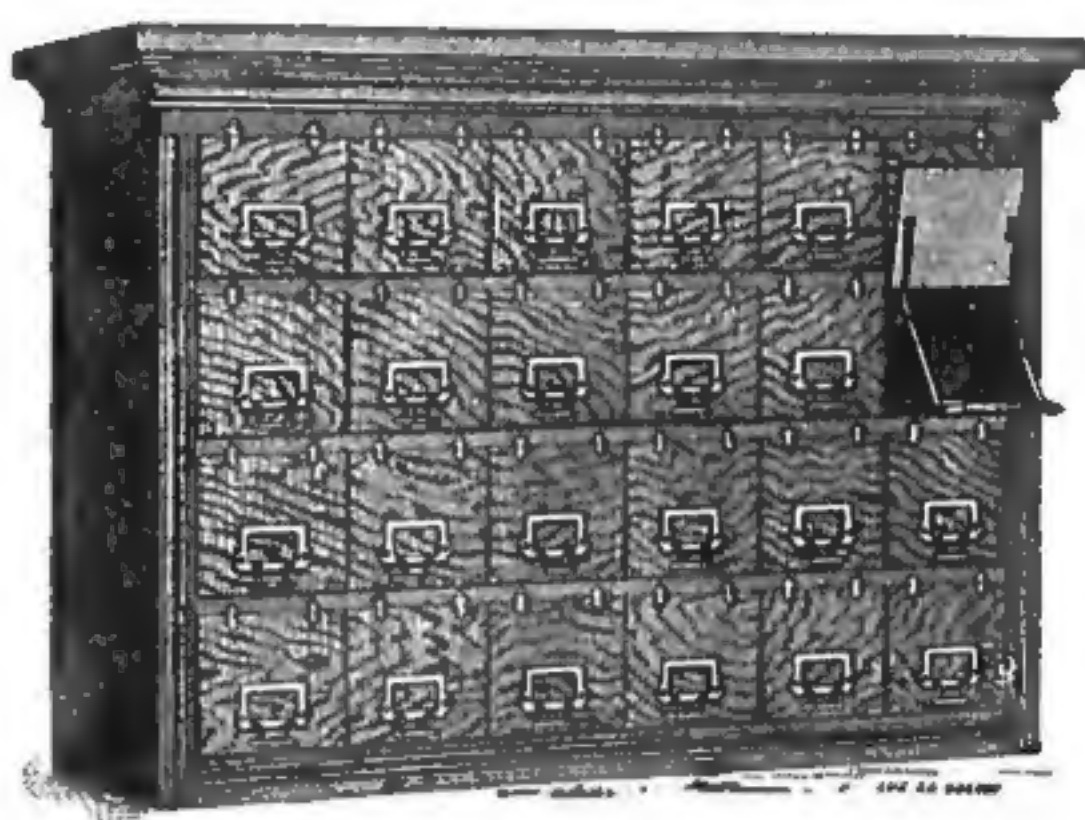
NO. 8.

NO. 8 Represents one side of one of our Revolving Cabinet Letter Files and Document Cases Combined. It contains 80 Document Drawers and 8 Letter File Drawers. In filing letters we use first VOWEL of name on front of drawer, and LETTER FOLLOWING first VOWEL on Index Sheet within drawer. We also make more exhaustive systems which contain from 6 to 100 or more Filing Drawers.

NO. 1 Represents one of our small Document Cabinets, for use on desks or brackets. Action of drawer can be seen in the cut. When front is raised inner drawer comes forward, exposing contents of drawer for inspection.

Our Cabinet Files are Conceded to be the Most Convenient of Any in the Market. They are Compact, Simple, Complete, Durable and Ornamental.

SEND FOR PRICE LIST AND CATALOGUE.



NO. 1.

MUNSON'S PORTABLE MILLS

With all of the Latest Improvements. Indorsed by the Best Mechanical Experts and Engineers. Every mill warranted; Every mill fully inspected: Every mill placed on its merits; Satisfaction guaranteed. Thousands in use; Best of references given.

IN USE BY THE LARGEST CORN GRINDERS IN THE WORLD.

MUNSON'S PATENT SPINDLE.
MUNSON'S PATENT EYE.
IMPROVED BUSH AND COLLAR,
CURBS, SILENT FEEDERS, ETC. ETC.

Fig. 1.

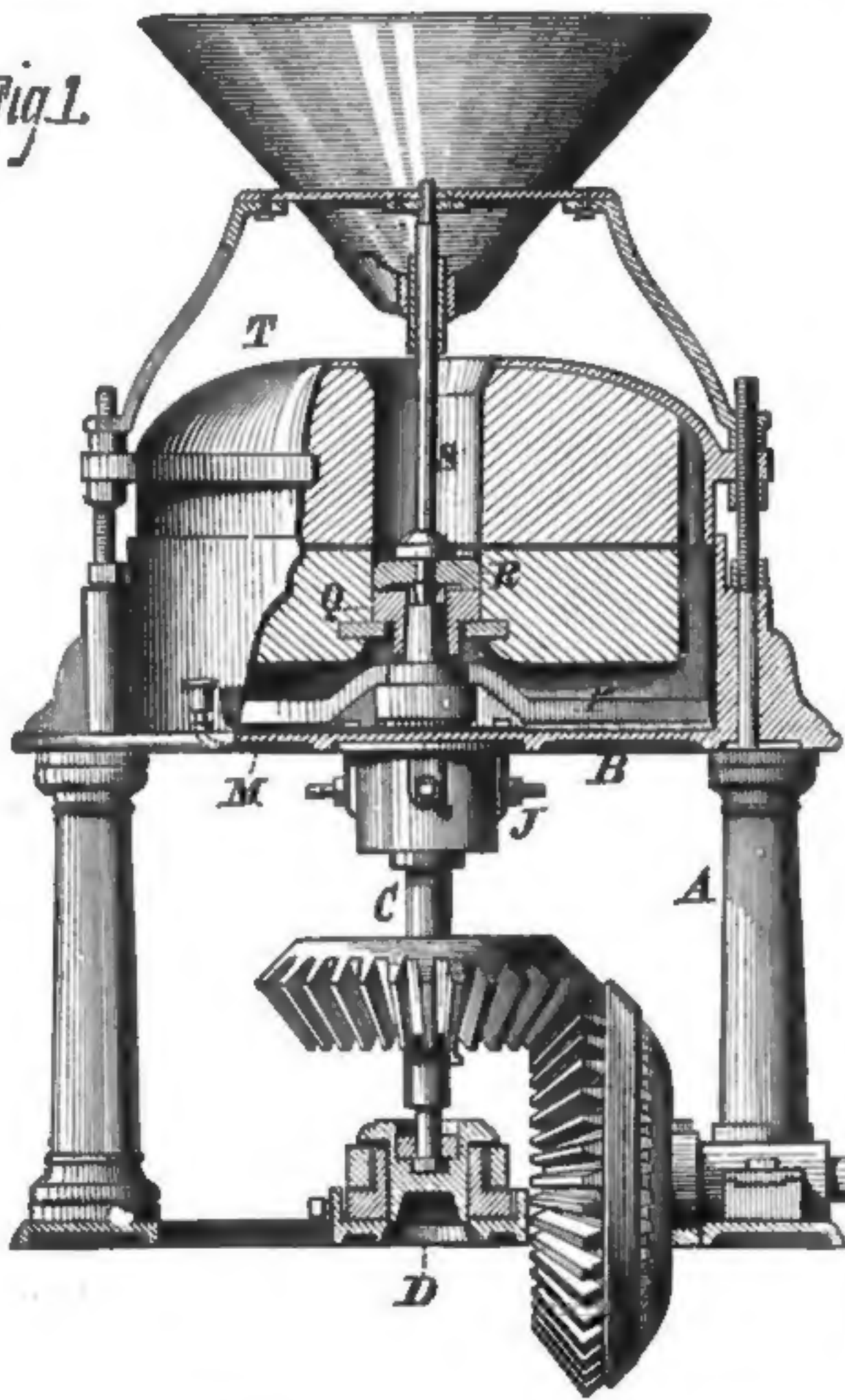


Fig. 2.

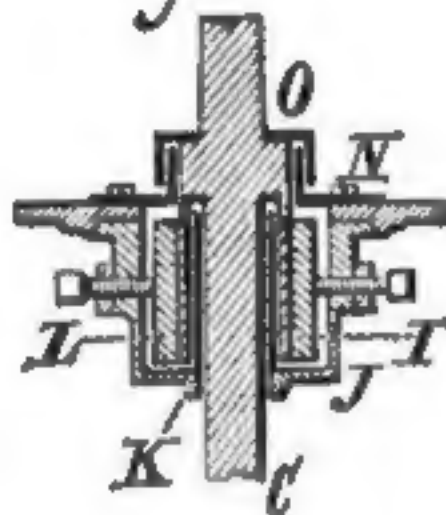
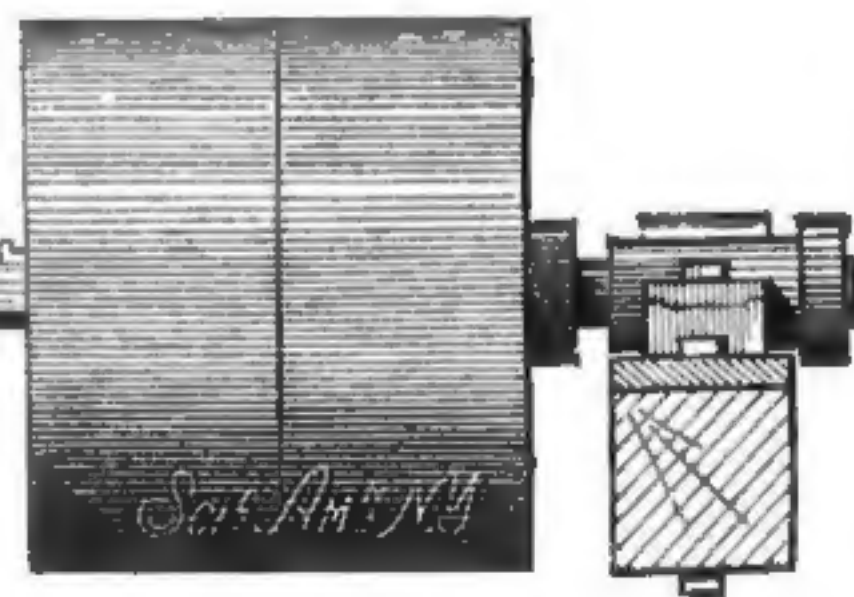


Fig. 3.



DOUBLE GEARED WITH COUNTER-SHAFT,
Tight and Loose Pulleys,
BEVEL SHELL WHEEL & PINION.
Write Us for Prices and Discounts.

Munson Brothers, Utica, N. Y.

C. H. BIRD & CO., KALAMAZOO, MICH.

MANUFACTURERS OF PATENT

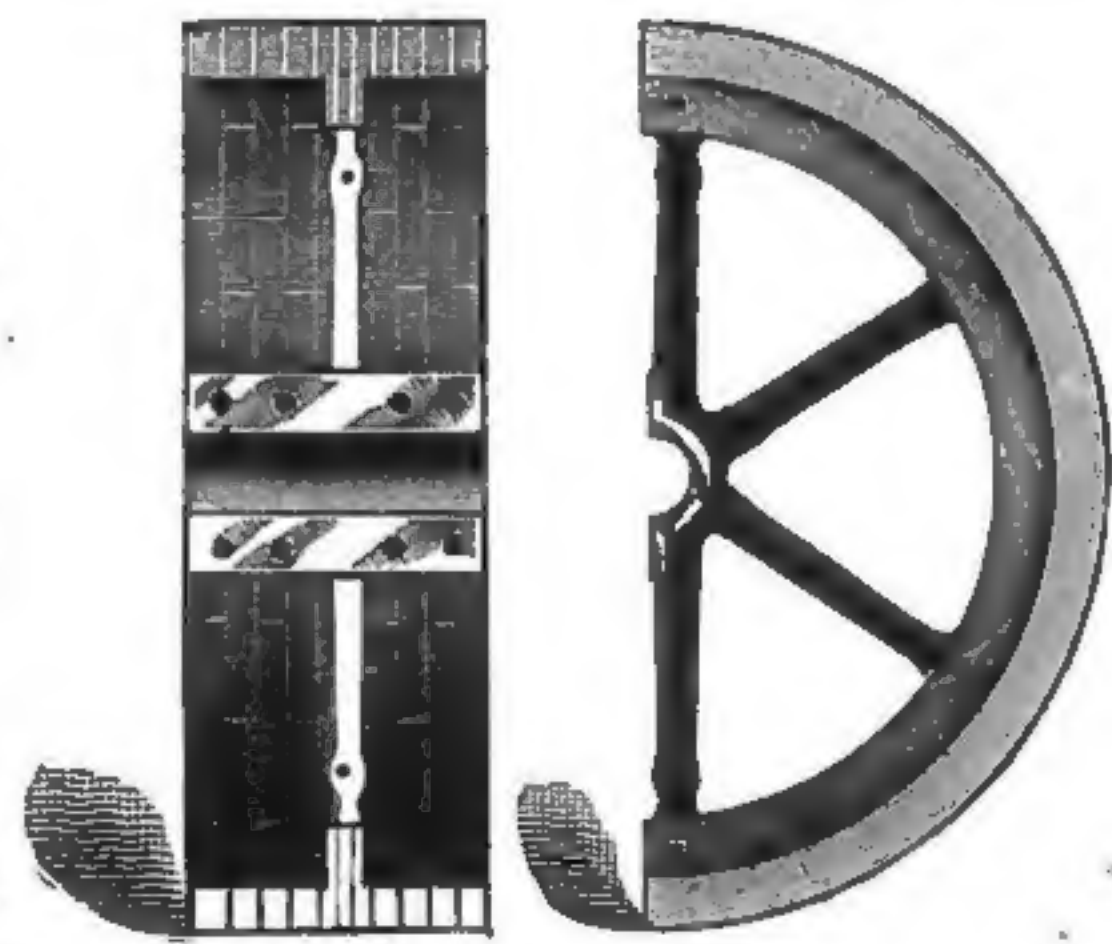
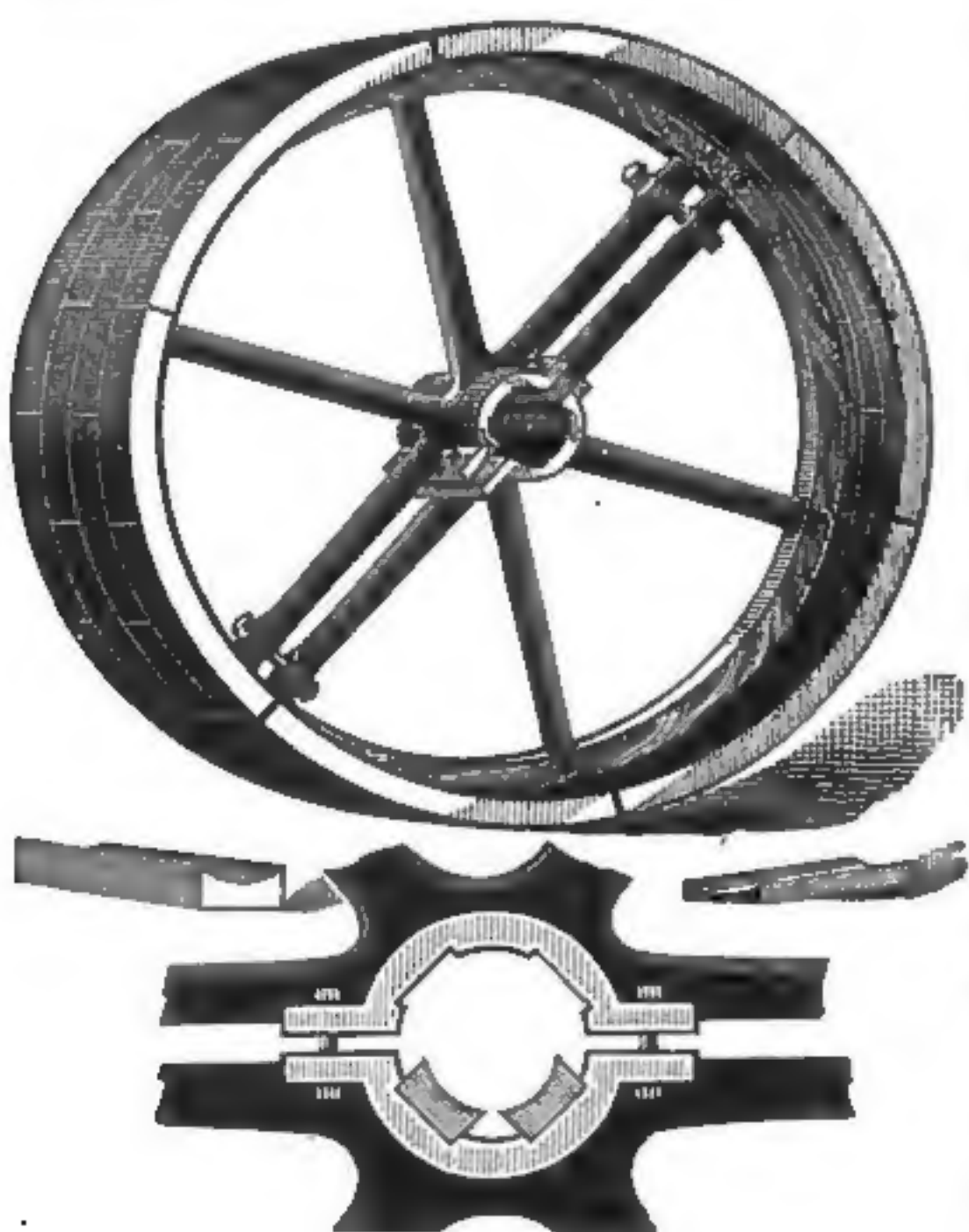
Wood Split Pulleys

WOOD RIM WITH IRON ARMS.

The Best Pulley on Earth!

Is very easily and quickly adjusted to Shaft. Has Patent Iron Bushings Interchangeable, to Fit Different Diameters of Shafts. Has FOUR or SIX Bearings on Shaft. This fastening never slips. Every Pulley strongly built and perfectly balanced.

SEND FOR CATALOGUE AND PRICE LIST.



THE MILLING WORLD

CHRONICLE OF THE GRAIN AND FLOUR TRADE

PUBLISHED EVERY MONDAY. OFFICES: { Corner Pearl and Seneca Streets,
Over Bank of Attica.
McFAUL & NOLAN, - - - PROPRIETORS.
THOMAS McFAUL. JAMES NOLAN.

SUBSCRIPTION.

In the United States and Canada, postage prepaid, \$1.50 Per Year, in advance; remit by Postal Order, Registered Letter, or New York Exchange. Currency in unregistered letter at sender's risk.

To all Foreign Countries embraced in the General Postal Union, \$2.25 Per Year, in advance.

Subscribers can have the mailing address of their paper changed as often as they desire. Send both old and new addresses. Those who fail to receive their papers promptly will please notify at once.

ADVERTISING.

Rates for ordinary advertising made known on application. Advertisements of Mills for Sale or to Rent; Partners, Help or Situation Wanted, or of a similar character One cent per word each insertion, or where four consecutive insertions are ordered at once, the charge will be Three cents per word. No advertisement taken for less than 25 cents. Cash must accompany all orders for advertisements of this class.

Orders for new advertisements should reach this office on Friday morning, to insure immediate insertion. Changes for current advertisements should be sent so as to reach this office on Saturday morning.

EDITOR'S ANNOUNCEMENTS.

Correspondence is invited from millers and millwrights on any subject pertaining to any branch of milling or the grain and flour trades.

Correspondents must give their full name and address, not necessarily for publication, but as a guarantee of good faith.

This paper has no connection with a millfurnishing house and aims to represent the trade without prejudice, fear or favor.

Address all communications

THE MILLING WORLD,
BUFFALO, N. Y.

Entered at the Post Office, at Buffalo, N. Y., as mail matter of second-class.

SITUATIONS WANTED.

Advertisements under this head, 25 cents each insertion for 25 words, and 1 cent for each additional word. Cash with order. Four consecutive insertions will be given for the price of three.

SITUATION WANTED.

By a practical miller; either stone or rolls; twenty-five years' experience. Will work on salary. Would rent a good mill or buy an interest in a good mill. Can give the best references as first-class. M. V. STRAIT, Howard, N. Y. 2225

SPECIAL ADVERTISEMENTS.

Advertisements of Mills for Sale or Rent, Partners Wanted, Machines for Sale or Exchange, etc., etc., cost 1 cent per word, for one insertion, or 3 cents per word for four insertions. No order taken for less than 25 cents for one insertion, or 50 cents for four insertions. Cash must accompany the order. When replies are ordered sent care of this office, 10 cents must be added to pay postage.

FOR SALE AT A BARGAIN.

A good 100-barrel roller mill in Western New York. Good reasons for selling. For particulars address, "E," care of MILLING WORLD, Buffalo, N. Y. 2226

FLOUR MILL FOR SALE.

Water power custom and merchant mill; 2-run 4½-foot buhrs, well fitted up; doing large business; 52 miles from New York; close to depot; good reasons for selling. JOHN ORR, Mountainville, Orange county, N. Y. 2225

SAFE BUSINESS INVESTMENT.

A party owning flouring mill, with modern most approved machinery, doing large, profitable, local and merchant business, well established, located in growing city, population 12,000, Western New York, desires to associate more active capital. Correspondence solicited. Address, BOX 787, Waukesha, Wis. 181f

FOR SALE.

- 10 Single Sets 9x30 Stevens Rolls.
- 2 Single Sets 7x12 Ferriers Rolls.
- 2 Centrifugal Reels.
- 2 No. 8 Niagara Bran Dusters.
- 2 No. 8 Prinz Dust Collectors.
- 1 No. 4 Hunter Purifier.
- 1 No. 6 Garden City Purifier.
- 1 No. 1 Pynn Purifier.
- 1 No. 8 Richmond Brush Machine.
- 1 No. 1 Silver Creek Scourer.
- 1 No. 00 Becker Brush Machine, over 50 Run Millstones all sizes, all complete.

Above Machines are in first-class condition and practically as good as new. Address J. B. DUTTON, 115 E. Fort Street, Detroit. 181f



If you are desirous of obtaining the best Mill or Cob Crusher, send for our catalogue and be convinced that our's fill the bill. Can not fail to please you. They are guaranteed to prove as represented.

C. C. PHILLIPS,
OFFICE, 20 SOUTH BROAD STREET,
PHILADELPHIA, PA.

MILL MACHINERY FOR SALE.

- One 24-Inch Portable Mill, wood frame, capacity 15 to 20 bushels per hour; new, best make.
- One 20-Inch Portable Mill, iron frame, capacity 13 to 16 bushels per hour; new, best make.
- One No. 0 Standard Combined Separator, Smutter and Brush Machine; new, best make.
- One 18-Inch Vertical Portable Mill, French Buhr Stone, hung on horizontal shaft; capacity 25 to 40 bushels per hour; new, best make.
- One 14-Inch Vertical Feed Mill; best make, new, a bargain.
- One No. 6 Dustless Separator; new, a bargain.
- Two No. 4 Scientific Grinding Mills, capacity 40 to 50 bushels per hour; new.
- A Lot of Elevator Buckets, brand new, best make, any size desired, very cheap.
- One No. 1 Full Rigged Combined Dustless Separator; new, a bargain.
- Four Corn Cob Crushers, right or left hand, driven from above or below, best make; capacity 40 to 60 bushels per hour.

For particulars address, FRANK SMITH, care of THE MILLING WORLD, Buffalo, N. Y. 5tf

FOR SALE.

Three-run mill, repaired, and a first-rate dwelling house, built last summer. I don't owe one dollar, but will sell cheap for cash, to build a mill in Forest county. Address J. S. PORTER, Lamartine, Clarion county, Pa. 2225

AGENTS WANTED.

Active resident agents wanted in every locality, rare offer, not whole time required, money made easily. Samples, &c, free. Send reference with application. RELIANCE OIL & GREASE CO., Cleveland, O. 1922

New wheat areas in the Territory of Washington are yielding superb crops of wheat of the finest quality. The Washington wheat makes a strong flour and it is rapidly finding favor in the markets.

THE grain shortage is an undeniable thing in the northwest at least. It is stated that out of 100 elevators, with an aggregate capacity of 28,000,000 bushels, 38 with a capacity of about 8,000,000 bushels are closed. On January 1 the wheat in northwestern elevators was only 8,000,000 bushels. At the same time the Minneapolis mills are grinding about 83,000 barrels a week, in spite of the "restriction" promised at the Milwaukee convention. Last year at this time the weekly output was about 93,000 barrels. Minneapolis restriction evidently does not restrict.

RECENT reports from Europe announce that the wheat sent out by Russia lacks the qualities that have made American wheat popular in European markets. It will not be an easy matter for European importing nations to get along without a large quantity of American wheat. An average crop of grain in the United States in 1889 will put a new face on the grain business of the world. Those who are asserting that Russia has "knocked out" the United States will do well to wait until another round is fought. Russia has for two consecutive years harvested the largest crops in her history, but she may go far below her average this year, and in that case she will fall back to her normal rear position as an exporter of wheat.

ACCORDING to a report sent out by the Central Millers' Association, St. Louis, Mo., January 14, the milling situation in the winter-wheat States is somewhat unsatisfactory. The report includes returns from 154 mills. Of these 31 are in Missouri, 36 in Illinois, 27 in Indiana, 15 in Tennessee and Kentucky, 13 in Kansas, 13 in Ohio and 19 in Michigan. They reported 3,927,390 bushels of wheat on hand on January 8, against 2,353,073 bushels on the same date in 1887. The flour on hand on January 8, 1889, included 48,792 barrels of patent, 106,352 barrels of extra fancy, 38,318 barrels of lower grades and 6,902 barrels of unclassified stock, a total of 200,364 barrels, against 154,921 barrels on the same date in 1887. In the same report Missouri shows the growing crop at 100 in acreage and 100 in condition, Illinois at 98 and 101, Indiana at 92 and 96, Tennessee and Kentucky at 98 and 91, Kansas at 144 and 100, Ohio at 100 and 110, and Michigan at 94 and 97 respectively. The report complains that a large "percentage of mills called upon to furnish reports failed to respond." The secretary, Mr. Alex. H. Smith, states that "the result is given for what it is worth." In view of all that has been said about the scarcity of wheat, the large amount on hand reported by these 154 winter-wheat mills is somewhat surprising.

COMBINATION, COMPETITION AND RESULTS.

A. B. SALOM.

Demagogic agitation in the matter of capitalistic combination is resulting in something good. The demagogues did not intend to bring about good results. They desired and intended to bring about evil results in the form of legislation to control private property and to take from men the right to conduct their own business in their own way. That evil they aimed at. They have missed it, but in the agitation the public has learned some very valuable things concerning the real nature and the influence of the so-called "combinations" and "trusts." Men who have taken the trouble to make themselves acquainted with the facts presented for and against combinations of capital, and who are sufficiently intelligent to understand the significance of those facts, have come to the conclusion that combination, instead of being the unholy influence the demagogues call it, has in reality been a positive advantage to the consumer. Closer acquaintance with facts and figures has done wonders in clearing away the mists and fogs which the sensationalists and fanatics have spread about the question, and the intelligent public is reaping good where the demagogues designed evil. The mere name of "trust" or "combination" has ceased to have to the intelligent man a sinister significance. The bugaboo has been cornered, and it turns out to be a nursery ghost.

The public mind being now fully awake to the question, it is well that education by facts and figures should be continued further. What have combinations done for prices? Have they increased or decreased the cost of produce to consumers? According to the most reliable figures the result of combination in the production, transportation and marketing of staple articles of food has been the very decided cheapening of those articles. Take for example the staples, sugar, coffee, tea, butter, cheese, pork, wheat and corn. According to the demagogic theory, these articles, produced or handled by the combinations of grangers, railroads, steamship corporations, middlemen, importers and speculators, should show a large increase in price to the consumer. What is the fact? The following table, showing the wholesale prices in largest lots, in the city of New York, for eighteen years, covering the whole period of trusts, pools, corners and combinations of all sorts, will tell the story:

Year.	Gran. Sugar. Decem- ber, each year.	Fair Rio Coffee. Av- erage price.	Tea. Medium Japan Average price.	Butter—State Dairy. Average price.	Cheese—Best Factory. Average price.	Mess Pork. Average price.	Wheat—Milw. Club. Average price.	Corn—Western Mixd. Average price.
1870.....	13c.	12½c.	48c.	33½c.	18c.	\$26.88	\$1.29	\$1.00
1871.....	12½	13	48	30	16½	16.46	1.52	.76
1872.....	12½	16½	48	28½	13½	13.61	1.62	.68
1873.....	10½	20¼	40	38½	14½	16.36	1.55	.65
1874.....	10½	20½	46	37½	13½	19.16	1.35	.89
1875.....	10½	18½	40	29½	13½	21.31	1.24	.83
1876.....	12½	18	27	29½	11½	19.63	1.21	.60
1877.....	9½	18½	24	22	12	14.76	1.50	.60
1878.....	8½	16½	25	22½	9½	9.77	1.17	.49
1879.....	9½	14½	30	18½	8½	9.88	1.17	.50
1880.....	9½	15½	26	27	12½	13.30	1.25	.55
1881.....	9½	12½	22	25½	12	16.95	1.28	.66
1882.....	8½	9½	21	30	11½	16.79	1.28	.80
1883.....	7½	10½	20	23½	11½	16.59	1.09	.65
1884.....	5½	10½	23	24	12½	15.92	.98	.59
1885.....	6½	9½	22	21	10	12.00	.95	.53
1886.....	6½	10½	22	23	10½	10.50	.88	.48
1887.....	6	17½	18	23½	12	14.48	.88 1-5	.49
1888.....	7½	17	18	24	11	15.50	1.05	.49

Evidently combination has not wrought "infinite loss to consumers" of those articles. Cheapness has been brought about by combinations of capital and by no other means. What is true of these articles of food is equally true of clothing, boots, shoes, hats, gloves, books, works of art, musical instruments, tools, machines of all classes, building materials, steel rails, nails, cutlery and all sorts of metal wares. In every important line capital has been attracted, and combination has cheapened wares to consumers. It would be

difficult, probably impossible, to point out a single line in which combination, pure and proper, has increased the cost to consumers. Reference is here made, of course, not to speculative combinations, commonly called "corners." That sort of combination may increase prices for a short time, but the history of corners shows that they are mere transitory phases of commercial disorder, and that they speedily fail.

In the light of the facts presented it may not be uninteresting to ask what has prevented combinations from increasing cost. The answer is simple, direct and satisfactory. Competition has prevented combination from making staple articles dearer. When the era of combination opened, it was feared that the crushing out of small producers would put the public at the mercy of the combinations. A score of years has shown the absurdity of that fear. The small producers have been employed by the combinations, and as fast as the combinations were known to be making large profits, new combinations were formed to operate in the same fields. The combination found competition with combination, and that served as a check to whatever evil tendencies they possessed. With millions of dollars always seeking investment, it is not possible for any combination to crush out all possible competition. The most gigantic corporation is always threatened with the formation of gigantic competitors, and that is what must be relied upon to defend the consumer against the possible despotism of combinations. Legislation is not needed. Governmental control is not desirable. Artificial remedies for fancied ills are ridiculous. Crazy politicians could not manage the business affairs of the community, and the sooner all attempts at legislation looking towards virtual confiscation of private property and unconstitutional abridgment of individual rights are abandoned, the better for the community.

Governmental supervision and management are the panacea of the demagogues for all real or conceivable ills. Nowhere on earth can be seen an instance of governmental management of purely business concerns that is not a conspicuous failure. Great Britain has a state telegraph system. Britons pay more for a poor service, with no redress for costly errors, than Americans pay for prompt service, with full redress for errors. American private capital runs its telegraph business on business principles and must win or lose all. British governmental management gives a wholly unsatisfactory service and falls back on the public purse in cases of deficits. Look at the following table of postal telegraph deficits in Great Britain for a series of years:

POSTAL TELEGRAPH DEFICIENCIES IN ENGLAND.

1872.....	\$771,036	1878.....	\$907,518	1883.....	\$ 682,672
1873.....	854,335	1879.....	547,774	1884.....	1,661,348
1874.....	997,910	1880.....	143,563	1885.....	1,741,228
1875-76....	919,842	1881.....	4,772	1886.....	2,255,232
1877.....	898,843	1882.....	540,166		

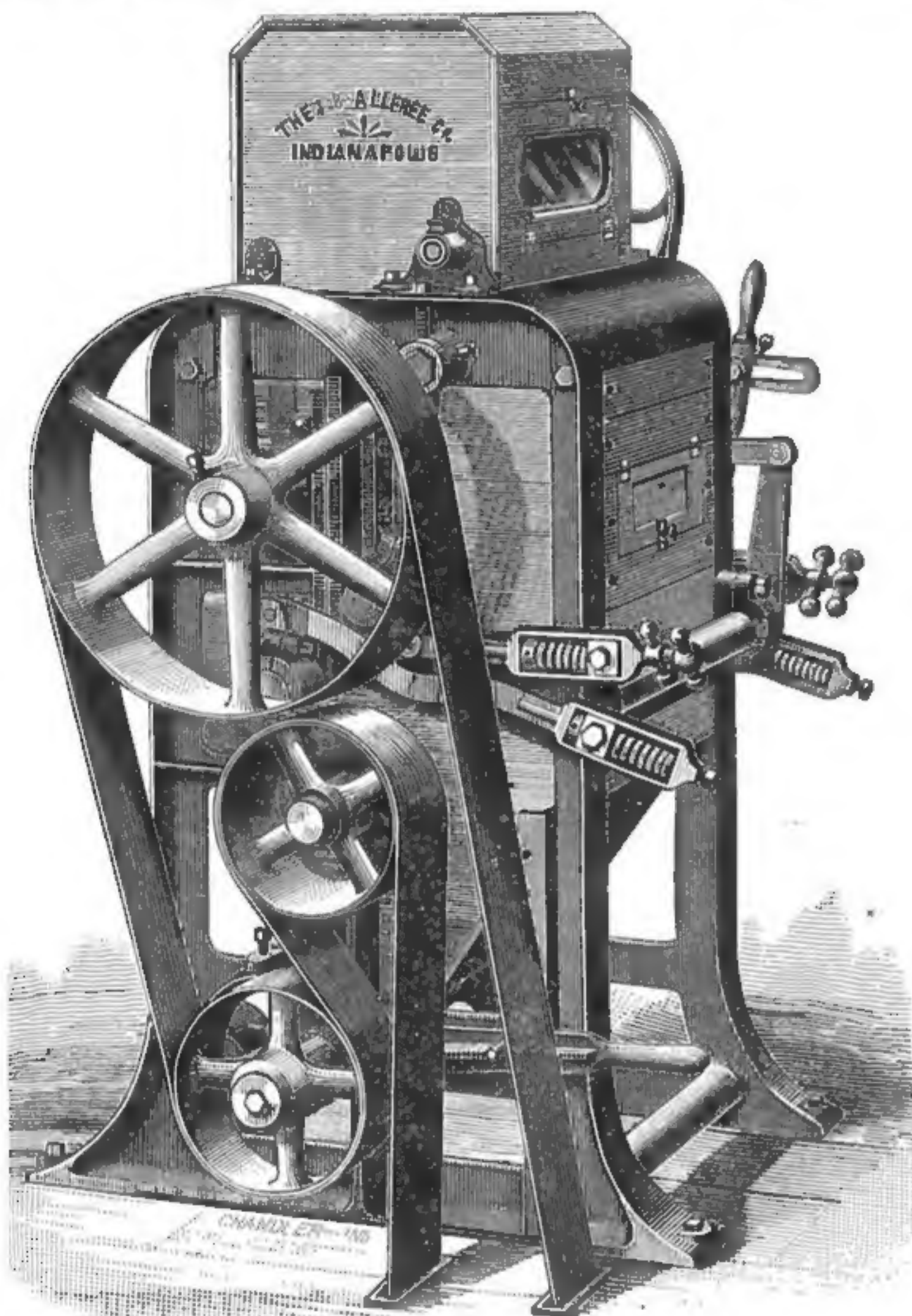
Does the American public desire an equally poor service at equally costly rates? The demagogue argues that the government of the United States has cheapened the carriage of mail matter and therefore it could cheapen telegraphy. The only answer needed to refute that argument is the statement that it is the railroads, owned and operated by private capital, that have made cheap postal rates possible. The government owns no transportation facilities, and without the much-abused railroads an ordinary letter would still call for \$2 instead of 2 cents for carrying.

The unsatisfactory character of governmental management is shown in the case of those European railroads that are operated by the State. Travelers abroad unite in denouncing the high charges, the inconvenient cars, the wretched service throughout and the total lack of all those comforts that are given without charge on American railroads. In addition to all these things, the roads are sure to call upon the public funds at regular intervals, so that the government-ridden Europeans must pay twice or thrice for wholly bad service. American demagogues, who denounce all combinations of capital as criminal and despotic, should study foreign instances of governmental management. That study will inevitably lead them to the conclusion that capital has on the whole done far better for the consumer than

it is credited with doing, that in the manipulation of the business and commercial affairs of the country governmental interference is not in the least degree desirable, and that injurious combination is yet unknown in the United States.

THE "KEYSTONE" ROLLER CORN MILL.

HEREWITH is shown the "Keystone" roller corn-mill manufactured by the J. B. Allfree Company, of Indianapolis, Ind., to which particular attention is called. The manufacturers of this machine say: The reduction being nicely pulverized or granulated, not floured, mashed and heated, as on buhrs, insures free, sharp bolting and clean bright meal that will keep much longer than the soft, oily germ-meal made on buhrs. In designing our four-high mill we have borne in mind that simplicity, strength, durability and economy of space are the cardinal points to be observed. Our drive-belt is a single open belt. The differential is simple and positive, either gears or belt being used. The feed is at all times reliable. Three reductions can be made and scalped separately, or three simultaneous reductions can be accomplished, the first passing directly to the second and thence to the third without elevating. The roll



THE "KEYSTONE" ROLLER CORN MILL.

journals are all very long and lined with very best babbitt-metal, preventing undue wear and heating of bearings. The rolls are all connected so that they are set simultaneously by a single movement, and yet they may be adjusted independently and with the exception of re-corrugating of roll when worn will last a lifetime. The frame and all other parts are exceedingly strong, the entire machine being specially constructed for rapid and perfect work. None but the best Ansonia rolls are used in these machines.

POINTS IN MILLING.

FLOUR making in England must indeed be a very different thing from flour making in the United States. Here is an English authority on grinding recommending the use of a "good washer, a whizzer and hot-air dryer, an air-current cooler and a brush-machine with plenty of fan power" for the treatment of hard wheats. With all those extras added, implying a large increase in the cost of plant, in the cost of maintenance and in the cost of labor, it is plain why the English millers have not been able to keep up with the procession. With all these added features, it remains true that the British millers do not turn out the best flour in the world, by any means. It is only begging the question to

assert that they are forced to use these additional facilities because of the character of the various wheats they have to handle, for they are repeatedly declaring that the best Russian, Indian, Australian, Argentine and other wheats which they import are "fully as good as the best American wheats." If we are to believe that assertion, then they accuse themselves of being less able to make good flour than the American and Hungarian millers. If we believe their assertion that they are better millers than the American and Hungarian millers, then we are forced to disbelieve their assertion about the wheats they import.

THE heating of wheat is of dubious value so far as the keeping quality of the flour is concerned. I have known cases in which flour made from wheat artificially heated was altogether unsatisfactory. Heat carelessly applied to toughen bran or to extract moisture will be succeeded by "sweating." It is safe to say that the sudden application of heat is not to be relied upon to complete changes in the grain that have been left incomplete by nature in the growing grain. Poor grain is poor grain forever the world over, and all the science and all the whizzers, bakers, roasters, dryers and cookers in the world can not convert poor grain into any thing but poor flour. The poor flour may be forced into consumption by hiding it in good flour, but it is poor flour to the end of the chapter, in spite of all the possible mixing. In all mixtures the good flour can not raise the quality of the poor flour one iota, but the poor flour always degrades the good.

SUGGESTIONS ON MILL BUILDING.

We have been studying system and the quantity and arrangement of machinery very closely, which is as it should be, because the first thing the prospective builder of a new mill should learn, or rather the first thing he should determine, would be the kind of a mill he needs, its capacity in barrels per day, and the quantity of machinery required. After that has been done he must devise a building to suit. Our time and effort have been largely devoted to the short system, and as the reader is undoubtedly quite familiar with the general principles and requirements of the system, so far as the machinery and its arrangements are concerned, he may now want to know something more in detail about a building required for the accommodation of the system and its machinery. In view of that fact we will briefly consider and describe a building that will well adapt itself to the system for a mill of any capacity from 50 to 150 barrels per twenty-four hours.

For 50 barrels only there would seem to be a great deal of unnecessary room, but it must be remembered that we must have about so much width of building any way, and all that could be gained by shortening it up would be of trifling importance compared with having a building reasonably well proportioned as to length and width. Our building will, therefore, be 34x44 feet on the ground. The basement wall should be of stone masonry two feet in thickness. The depth of basement, measured from first floor, need not be more than ten feet. The bottom of the basement should be firmly laid in cement. There should be a number of half windows in the upper part of the basement walls, for the purpose of furnishing light and air, both of which are very essential in the basement of a well regulated and well kept flour-mill. No one connected with a mill should be afraid of light and air in the basement, although if we were permitted to draw conclusions from appearances, a great many mill-owners regard light and air in the basement an evil, a something to be avoided, while darkness and filth are cherished as a blessing, the one thing altogether lovely.

The engine-room and basement should be connected by a door affording quick and easy passage from one to the other. Where water-power is used, the open connection between the power-plant and the basement of the building is of not so much importance. There must be two main supporting posts placed in the center of the basement crosswise, dividing it lengthwise into three spaces. These posts should be 16x16 or 18x18, depending somewhat on the value of lumber,

but all things considered the larger size will prove the best. The posts must rest on a very firm pedestal of rock or stone masonry. That is made necessary, as can be readily understood, because the whole of the center weight of the building, which is made proportionally the heaviest on account of the weight of the machinery, rests upon the posts. The center post of a mill should be continuous from the bottom of the basement to the top of the building. That is, one post should sit on another and not on the girder, as is generally the case. The top of the basement post should be provided with an iron cap which projects on both sides of the post, in the lengthwise direction of the building, sufficiently to catch the ends of the girders and give them a firm hold. The next post or section of the post drops down between the ends of the girders and rests on the iron cap. The importance of such an arrangement of the posts of a flour-mill is quite obvious. It keeps the floors of the mill about level, while by the old plan the floors sink in the center, the upper ones becoming very much dished in the course of time. The reason of it is there is so much shrinkage of caps and girders. A building having three floors such as the one we are now describing would have from five to six feet of timber, which is more liable to be green than otherwise, when put in, to shrink.

There would be three wooden girders and three wooden caps. In the proposed plan all that would be done away with by allowing the timbers of each floor to shrink independently of the other. That is assumed to be uniform the whole length and breadth of the floor, and consequently in settling by shrinkage, each will maintain its original level plane and not materially interfere with the arrangement and good working condition of the machinery. The first story above the basement ought to be fourteen feet high from floor to floor. It is scarcely necessary to advise light on this floor, because every man that knows any thing about a mill fully appreciates the importance of that. It should be well lighted on three sides. The end next the engine and boiler house should have no openings in it, if the house be of brick or stone. If a frame building, it will not matter materially. And that reminds us that the door connecting the engine-room and basement should be provided with iron fire-doors. The first-floor rooms of a flour-mill can be rendered very cheerful by planing the wood-work and painting it white. The elevator legs and spouting look better when simply shellacked. We will state that the object of having the first story fourteen feet high, which looks very tall to an ancient miller, is to allow abundance of fall for spouting and at the same time keep the spouting well up in the air and out of the way of every thing, and especially the heads of tall millers.

The second story must be sixteen feet high from floor to floor. It ought also to be well supplied with windows on all sides but the one next the engine-house. Sometimes the second story of a mill is well supplied with windows, and then a number of them obstructed by stock hoppers of various kinds. That should not be allowed. All stock hoppers running along the wall should occupy the spaces between the windows, but never opposite to them. The main object in having the second story sixteen feet high is to allow scalpers to sit on top of centrifugal reels, or to allow one centrifugal reel to sit on another, as the case may be. By arranging the machines in that way a large amount of re-elevating is saved, and it enables the builder to get along with a less number of elevators than otherwise. It also places the spouting largely overhead and out of the way and leaves lots of room to move around in and keep every thing in proper shape. Although it adds to the expense of the building, it will pay to plane all the wood work, because it is so much easier to keep it clean and free from the accumulation of dust.

The top story should be at least eighteen feet to the square, unless a steep roof is used; then it need not be so high to the square, but should be about twenty-two feet to the comb of the roof. The additional height is needed in the top story to allow for the heads of the elevators, which should run up into the highest point and still have as much

or about as much spouting fall as in the story below, because we want to arrange the machines in substantially the same way, by placing one above the other, to save re-lifting the material. With a house provided as here described there need not be a conveyor of any kind in the mill; every thing can be spouted to its destination, and that too with the fewest possible stands of elevators. And, too, every thing will be convenient and accessible. The entire line of machinery can be so arranged as to bring every piece in full view and easily reached whenever it may require attention.—*R. James Abernathy in Mechanical News.*

AMERICAN WHEAT IN GREAT BRITAIN.

The importance of the grain and flour trade between Great Britain and the United States may be seen in the following tables, showing the total importations of both wheat grain and wheat flour into Great Britain from all countries, from 1874 to 1887, inclusive, with the percentage contributed by the United States in each year. The wheat importations were as follows:

Year.	Total Imports. Hundredweights.	From Uni'd Sta's. Hundredweights.	Proportion from Uni'd Sta's. 56 per cent.
1874.....	41,527,688	23,090,091	56
1875.....	51,876,517	23,523,307	45
1876.....	44,454,637	19,323,054	43
1877.....	54,269,800	21,386,970	39
1878.....	40,906,484	29,060,809	58
1879.....	59,591,796	36,041,395	60
1880.....	55,261,924	36,190,814	65
1881.....	57,147,933	36,083,488	63
1882.....	64,240,749	35,137,173	55
1883.....	64,137,746	26,128,761	41
1884.....	47,306,156	22,641,050	48
1885.....	61,498,864	24,272,852	39
1886.....	47,435,806	24,643,531	52
1887.....	55,802,518	30,530,263	55
1888.....	63,950,985	22,503,200	35

The wheat flour importations into Great Britain for the same period, with the American percentage of contribution, were as follows:

Year.	Total Imports. Hundredweights.	From Uni'd Sta's. Hundredweights.	Proportion from Uni'd States. 53 per cent.
1874.....	6,236,044	3,292,769	53
1875.....	6,136,083	2,279,075	37
1876.....	5,959,821	2,320,279	39
1877.....	7,377,303	1,765,620	24
1878.....	7,828,079	3,621,861	46
1879.....	10,728,252	6,862,179	64
1880.....	10,558,312	6,873,829	65
1881.....	11,357,384	7,693,174	67
1882.....	13,057,403	7,800,806	60
1883.....	16,329,312	11,270,459	70
1884.....	15,095,301	10,336,481	68
1885.....	15,832,483	11,731,903	74
1886.....	14,689,560	11,425,251	77
1887.....	18,063,234	14,860,415	82

This remarkable showing of the percentage of American wheat grain and flour in British importations is rendered still more impressive when it is remembered that the years named cover the entire period in which British enterprise has been exerting every possible effort to secure a wheat grain supply that would render Great Britain independent of or less dependent upon the United States. British capital has developed India, Australia and other lands in the hope of securing enough wheat to shut out the American grain, but so far all efforts have failed, and Great Britain up to the beginning of the year 1888 has seen herself more and more dependent upon the United States for wheat grain and flour. There has been variation in the American percentages, but not greater than was to be expected as the result of varying crop conditions year by year in the various wheat-producing countries. Another notable thing in connection with the wheat supply of Great Britain is the percentage which India has been able to furnish her during the years named. Following are the figures:

Year.	Per cent.	Year.	Per cent.	Year.	Per cent.
1874....	2.5	1879....	1.4	1884....	16.5
1875....	2.6	1880....	5.8	1885....	19.7
1876....	7.4	1881....	11.7	1886....	23.2
1877....	11.2	1882....	13.1	1887....	15.2
1878....	3.6	1883....	17.5		

Another interesting thing is the position of the Russian wheat grain and flour supply to Great Britain in competition with the United States. The crops of 1887 and 1888 in Russia were abundant and fine, and the Russian government has taken an active part in aiding the Russian farmers to ship out their surplus. These two facts have caused an increase in the Russian supplies to Great Britain for 1887 and 1888, and that increase has been translated to mean that Russia will supplant the United States in the work of supplying Great Britain with wheat grain and flour. British writers have asserted that to be the meaning of the situation, and some American writers have feared that it may mean that. One swallow does not make a summer, and one or two increases in the Russian percentage do not mean a permanent increase any more than one or two American decreases mean a permanent decrease. Cold figures will reveal the relative position of Russia. During the past 14 years the Russian percentage of wheat grain supplied to Great Britain has varied as follows:

Year.	Per Cent.	Year.	Per Cent.	Year.	Per Cent.
1874....	13.7	1879....	13.4	1884....	11.4
1875....	19.2	1880....	5.2	1885....	19.4
1876....	19.7	1881....	7.0	1886....	7.8
1877....	19.9	1882....	14.9	1887....	9.8
1878....	18.0	1883....	20.8	1888....	33.3

Russian flour supplies to Great Britain during the same years are shown in the following table, giving the Russian percentage of the total British importation of wheat flour:

Year.	Per Cent.	Year.	Per Cent.	Year.	Per Cent.
1874....	.94	1879....	.84	1884....	.62
1875....	1.98	1880....	.63	1885....	.54
1876....	1.76	1881....	.87	1886....	.15
1877....	1.90	1882....	.63	1887....	.23
1878....	1.31	1883....	.49		

The thorough study of these figures ought to cure certain American writers of the insomnia they have incurred while worrying over the extinction of the American flour and grain trade with Great Britain by Russian competition. Let it not be forgotten that American wheat and wheat flour are articles of so high a grade that competition can not drive them out of the European market on merit. Circumstances may temporarily decrease their sales, but there will always be a large demand for them, especially in Great Britain. Study the figures presented herewith and rest assured that the end of the "American competition," as our European rivals call it, is not yet ended nor near its end.

WHY CASH SHOULD BE PAID.

Commenting on the prevailing methods of transacting business by farmers and millers, an Ohio farmer says in "The American Grange Bulletin": For some time I have had a doubt about milling in the old style at a mill of the new style. I have thought, as I looked on the remnant of my grist each time as I came from the mill, that it was growing pitifully less, till it gradually dwindled away to such small proportions that I fain would have asked the miller to reverse the business and give me the toll and the sacks. But he looked so honest each time as he wheeled it out, and withal so cheerful and obliging that I failed to say the fatal words, but received my share with an air of grim satisfaction, sometimes whistling:

Happy is the miller who lives in the mill,
As the mill goes round, round, round.

For these reasons, for the last two or three years I have not been a regular customer of the mill. Failing to see any profit in it, I found it unnecessary to keep on hand a certain amount of wheat for this purpose, so about half of the time I bought flour, going to the mill only when it suited best. There are two good mills at Delphos, Ohio, as good as can be found anywhere. If one has good wheat and is pretty sharp, he may get 47 pounds of mill product from a bushel of wheat, viz., 35 pounds flour, 10 pounds bran and 2 pounds middlings. They make three grades flour, low-grade, straight-grade and patent. The latter is not given in exchange; it is made for the upper tens, but it takes all the starch out of the grist. If one can get the above allowance there is something in going to mill. I have received this al-

lowance twice to my knowledge, but not in a regular way. The first time I took 16 bushels of good wheat and traded it for flour, bran and middlings, to be weighed out when called for and at the rate of 35, 10 and 2 per bushel. The next time I wanted to go to the mill I could not find any wheat that would test 60 pounds. I suppose the miller had cornered it. I bought it of mill No. 2, No. 1 would not sell at any price. I paid a premium of 5 cents per bushel for it. The grist ran like this: Six bushels of wheat at 75 cents, \$4.50; product, 210 pounds flour, 60 pounds bran, 12 pounds middlings. Flour at this time was \$4.60 per barrel. So after giving a premium on the wheat I came out about 97 cents ahead. It paid to go to mill when wheat was bought of the miller.

Wheat is now worth \$1 per bushel if it tests 60 pounds. Flour is worth \$5.60 per barrel; 8 bushels of wheat will make 280 pounds of flour worth \$7.84, 96 pounds of bran worth 75 cents, making in all \$8.59. It pays to go to mill by 59 cents if your wheat is prime and the miller does what he agrees to. I went to mill the other day. I went in the old-fashioned way. I did all I could to crown the act with a semblance of antiquity. If I could have found a pair of knee-breeches I would have put them on to call the miller's attention to a time when one-eighth only went for toll. I unloaded eight bushels of wheat with all the dignity and grace of one who expected at least seven bushels of it back in mill products. It is but fair to state that the wheat, while nice and clean, has an unfortunate sprinkling of rye. It was discounted 15 cents at the warehouse, making it worth 85 cents. The eight bushels then were worth \$6.80. Flour is worth \$5.60. I received of mill product 500 pounds flour and 86 pounds of bran. Flour worth \$5.60, bran about 65 cents, making my mill product worth only \$6.25. So it don't pay to go to mill by 55 cents. I feel just this way about the matter. I want to sell at the highest market price and buy where I can cheapest. But when I go to mill again and let the miller toll out two-fifths of my grist, it will be a very cold day indeed. We have in return for this scant allowance a very fine flour; yet it is questionable, if health is considered, whether it is as good as it is expensive. A buhr mill and no miller's union, or a reasonable exchange.

Minneapolis during 1888 ground 7,233,930 barrels of flour and exported 2,634,440.

SPECIAL NOTICES.

LIBERAL OFFER.

With a view of increasing our subscription list, we will send a copy of R. J. Abernathy's new book, "The True Short System" (Price \$2.00) and "The Milling World" for one year at the very low price of Two Dollars. Renewal will be treated same way. This offer will only continue for a limited time. Now is your chance. Send in your subscriptions at once.

Address,
THE MILLING WORLD, BUFFALO, N. Y.

BOLTING CLOTH.

Do not order your cloth until you have conferred with us. It will pay you, both in point of quality and price. We are prepared with special facilities for this work. Write us before you order.

CASE MANUFACTURING CO.,
Columbus, Ohio.

Office and Factory, 5th Street, north of Naughten.

TOLEDO MILL PICKS AND STONE TOOL MFG. CO.

Manufacturer

and Dresser of

MILL PICKS.

Made of the best double-refined English cast steel. All work guaranteed. For terms and warranty, address, GEO. W. HEARTLEY, No. 297 St. Clair Street, Toledo, Ohio. Send for Circular.

N. B.—All Mill Picks ground and ready for use (both old and new) before leaving the shop. No time and money lost grinding rough and newly dressed Picks. All come to hand ready for use.

ALSO MANUFACTURERS OF

Shafting, Pulleys, Hangers, Coupling, Machine and Jobbing, Etc., Etc.



TO PIPE NATURAL GAS ECONOMICALLY.—It is said to have been demonstrated that in piping natural gas in pipes of one size about eight pounds per mile of the pressure is lost, but by using the telescope system, with smaller pipes at the well and gradually increasing the size towards the point of consumption, the loss of pressure is reduced to three pounds per mile.

GENERAL NOTES.

THE capital of the United States has been located at different times at the following places: At Philadelphia from Sept. 5, 1774, until Dec., 1776; at Baltimore from Dec. 20, 1776, to March, 1777; at Philadelphia from March 4, 1777, to Sept., 1777; at Lancaster, Pa., from Sept. 27, 1777, to Sept. 30, 1777; at York, Pa., from Sept. 30, 1777, to July, 1778; at Philadelphia, from July 2, 1778, to June 30, 1783; at Princeton, N. J., June 30, 1783, to Nov. 20, 1783; Annapolis, Md., Nov. 26, 1783, to Nov. 30, 1784; Trenton from Nov., 1784, to Jan., 1785; New York from Jan. 11, 1785, to 1790; then the seat of government was removed to Philadelphia where it remained until 1800, since which time it has been at Washington.

INTERESTING CROP COMPARISONS.

Millers will gain a clear idea of the situation of the flour and grain trade by a careful study of the following comparative exhibit of acreage, yield and value of both corn and

wheat in the United States for a series of years. The figures are in every case the official figures of the Department of Agriculture. According to the record the acreage, yield and value of the wheat crops has been as follows:

Years.	Acreage.	Crop, bus.	Value.
1888.....	37,336,138.....	414,868,000.....	\$384,248,000
1887.....	37,641,783.....	456,329,000.....	310,612,000
1886.....	36,806,184.....	457,218,000.....	314,226,000
1885.....	34,189,246.....	357,112,000.....	275,320,000
1884.....	39,475,885.....	512,763,000.....	330,861,000
1883.....	36,393,319.....	420,154,000.....	383,649,000
1882.....	37,067,194.....	504,185,000.....	444,602,000

The figures on the corn crops are equally interesting. The comparisons extending back to 1883 are as follows:

Years.	Acreage.	Crop, bus.	Value.
1888.....	75,672,763.....	1,987,790,000.....	\$677,562,000
1887.....	72,392,720.....	1,456,161,000.....	646,107,000
1886.....	75,694,208.....	1,665,441,000.....	610,311,000
1885.....	73,130,150.....	1,936,176,000.....	635,675,000
1884.....	69,683,780.....	1,795,528,000.....	640,736,000
1883.....	68,301,889.....	1,551,067,000.....	658,052,000

MILLING PATENTS.

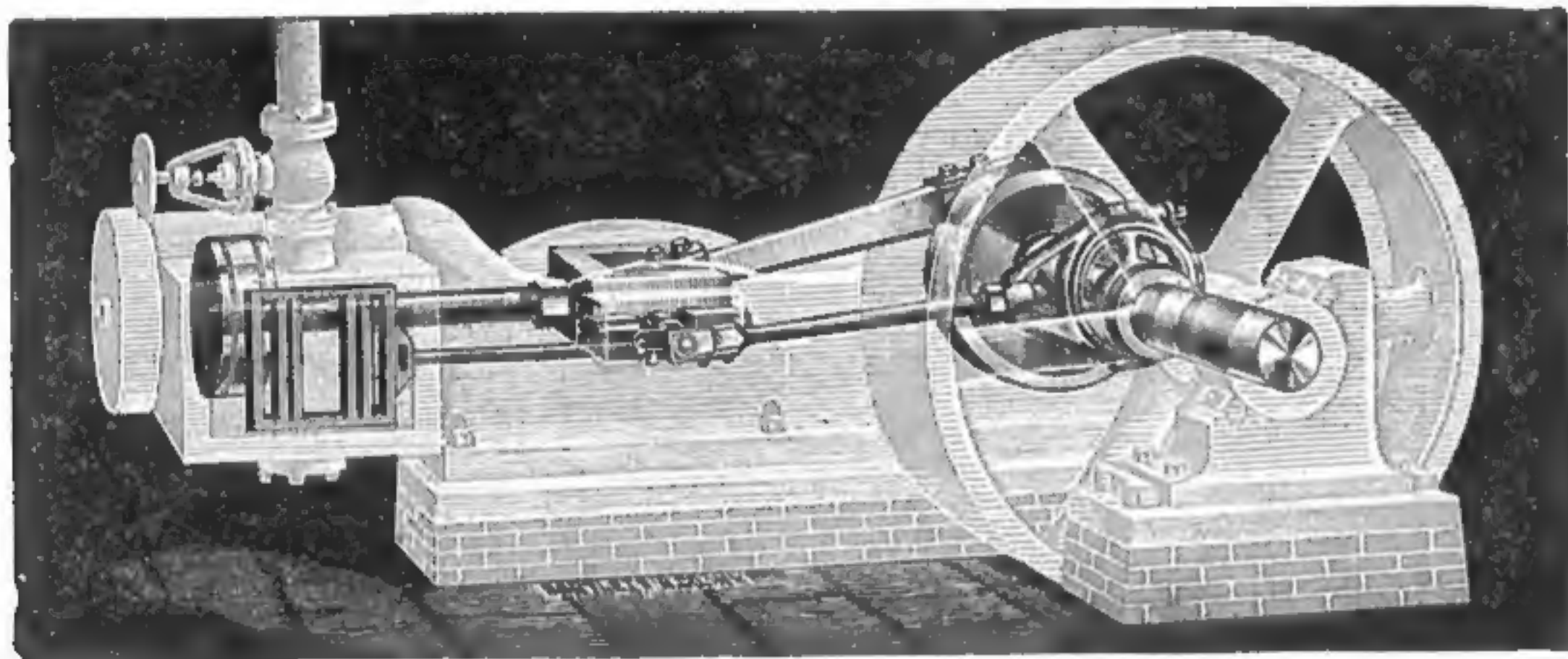
Among the patents granted January 15, 1889, are the following:

Jason Bemis, Ottumwa, Minn., No. 396,063, a grain-tally.

David Snelling, Adams, Ill., No. 396,375, a corn-sheller, assigned to the King & Hamilton Co., Ottawa, Ill.

AMONG the new advertisers in this number of THE MILLING WORLD is the well-known Eagle Iron Works, of Detroit, Mich., to whose announcement on another page attention is directed. Every article produced by this establishment is standard and high-grade. Address them for price-list, illustrated catalogues and all desired information.

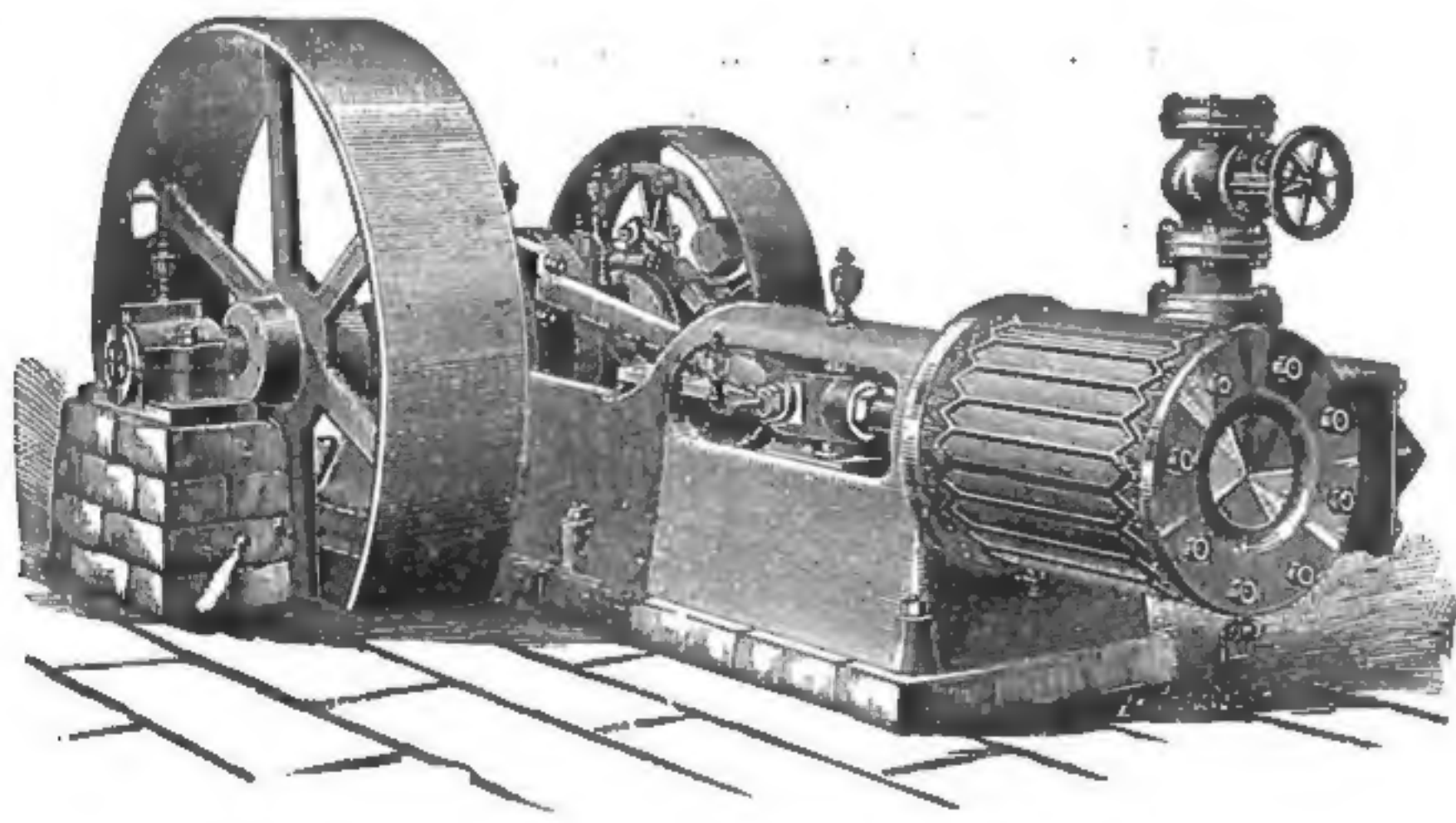
THE NEW PORTER HEAVY-DUTY ENGINE.



The Most Power for the Money, and All Things Considered the Most Economical.
For Illustrated Circular Address,

PORTER MANUFG. CO., LIMITED, SYRACUSE, N. Y.

Economic Power Plants

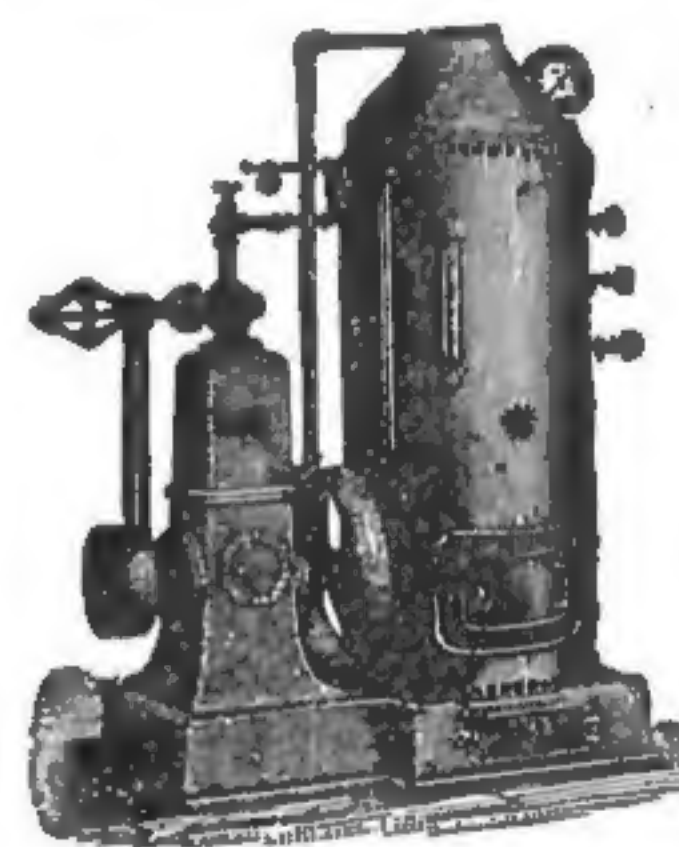


Especially Adapted to Electric Lighting and

WOOD-WORKING ESTABLISHMENTS

MANUFACTURED BY

VALLEY IRON WORKS, WILLIAMSPORT, PENN.



**DURABLE,
ECONOMICAL,
NOISELESS,
SELF-LUBRI-
CATING,
LOW-PRICED.**

One and two Cylinder Engines, with vertical or horizontal boilers, are running 2 years without using a wrench on them.

1 to 15 H. P.

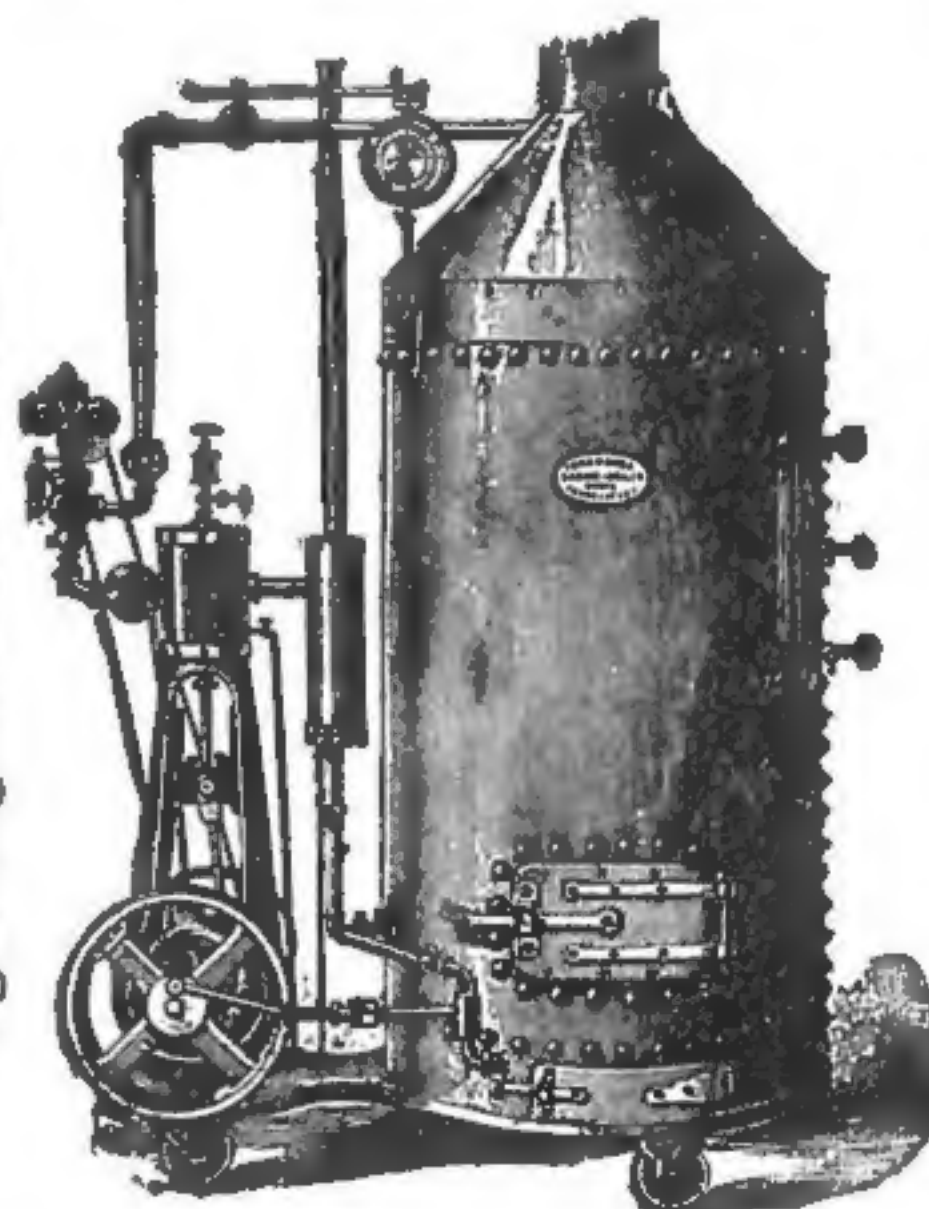
SEND FOR CIRCULAR TO

**CASTLE ENGINE WORKS
INDIANAPOLIS, IND.**

TONAWANDA ENGINE AND BOILER WORKS

A Large Assortment of Machinery.

The Best 6-Horse Power Semi-Portable Up-right Engine and Boiler Made.



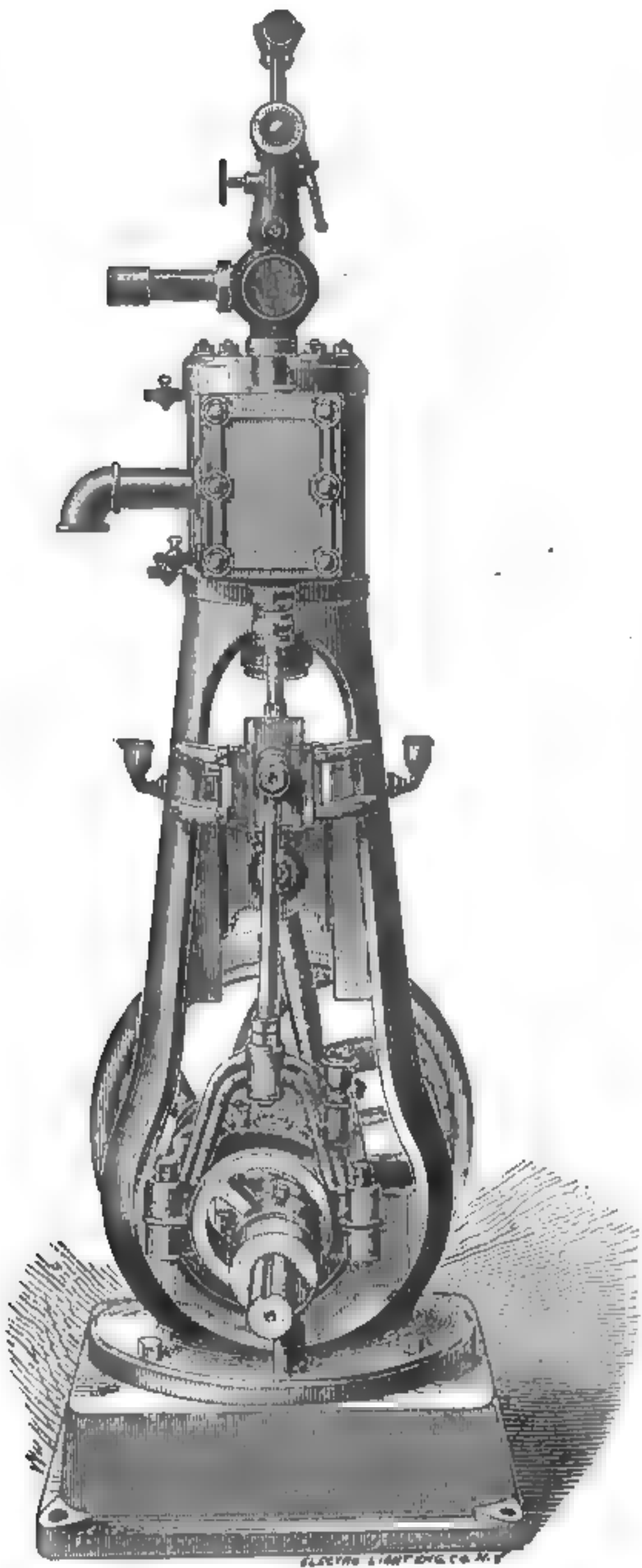
SPECIAL PRICE. GUARANTEED.

SEND FOR CATALOGUE.

ARMITAGE, HERSCHELL & CO.

Tonawanda N. Y.

AUTOMATIC VERTICAL ENGINES



Especially adapted for Small Electric Light Plants. Perfect Regulation. Reversible Link Motion for Marine Use. Five to Fifteen Horse Power. Also manufacturers of

Lathes and Special Tools

Metal Patterns, Models and Machinery Built to Order. Send for Prices and Specifications.

Lloyd & Sterrett

COR. 16TH AND STATE STS.,

ERIE, - - PENN.

PAYNE HIGH SPEED CORLISS ENGINE

SHAFT GOVERNOR COMBINED WITH CORLISS WRIST-PLATE.

ECONOMY OF FUEL.

REGULATION EQUAL TO ANYTHING IN USE.

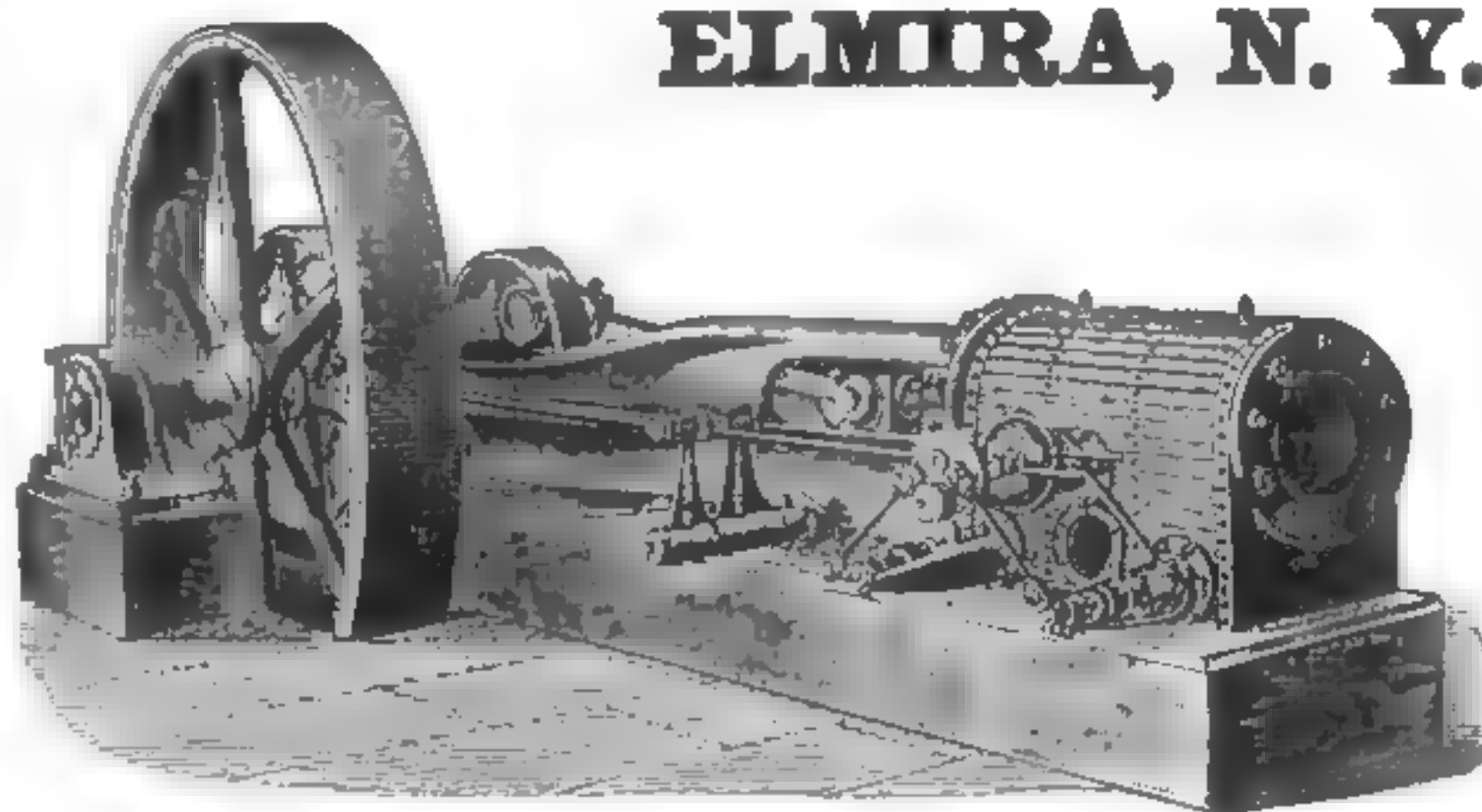
B. W. Payne & Sons,

ELMIRA, N. Y.

10 S. Canal Street,
CHICAGO, ILL.

45 Dey Street,
NEW YORK.

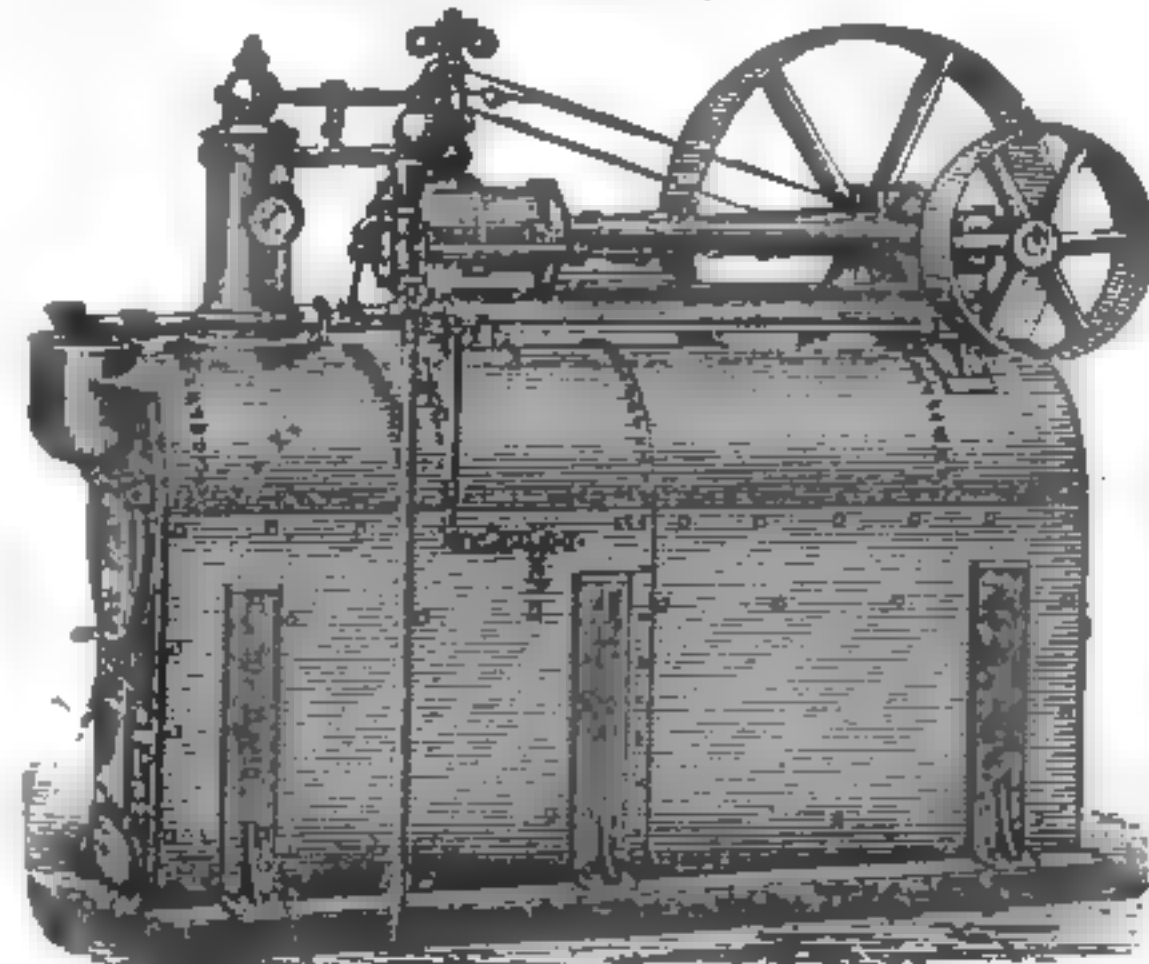
Hill, Clark & Co.
BOSTON, MASS.



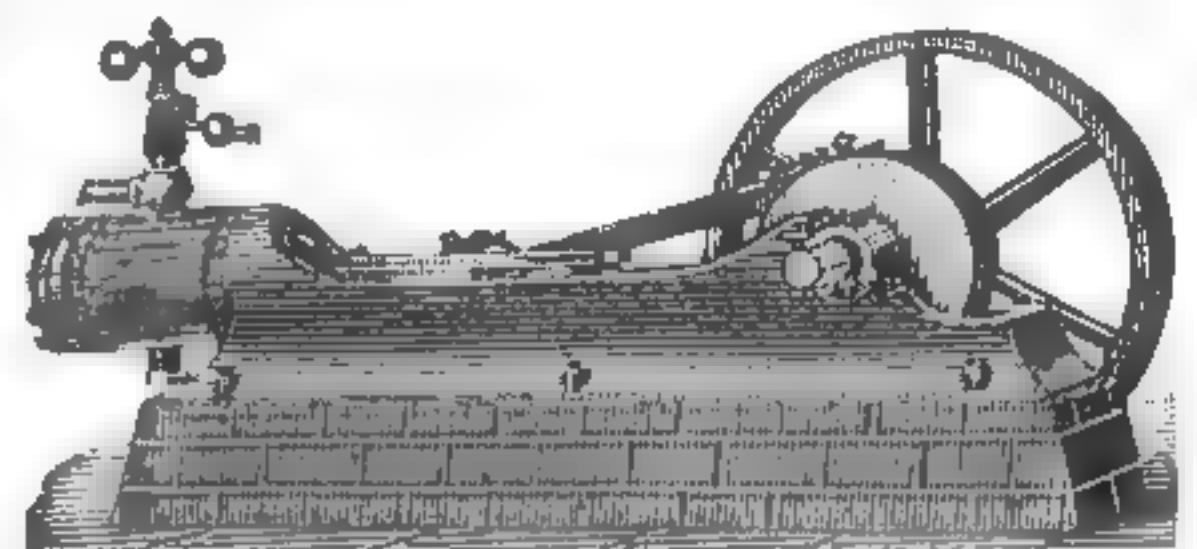
AUTOMATIC ENGINES FROM 2 TO 200 HORSE POWER.

SKINNER ENGINE CO. ERIE, PA.

Awarded **THREE GOLD MEDALS** by the **WORLD'S INDUSTRIAL and COTTON CENTENNIAL EXPOSITION** of ST. LOUIS, MO.



Eastern Office, C. E. Vincent & Co., Room No. 62, 15 Cortlandt St., New York.



PORTABLE and STATIONARY
ENGINES & BOILERS
MORE THAN 2700 IN USE.

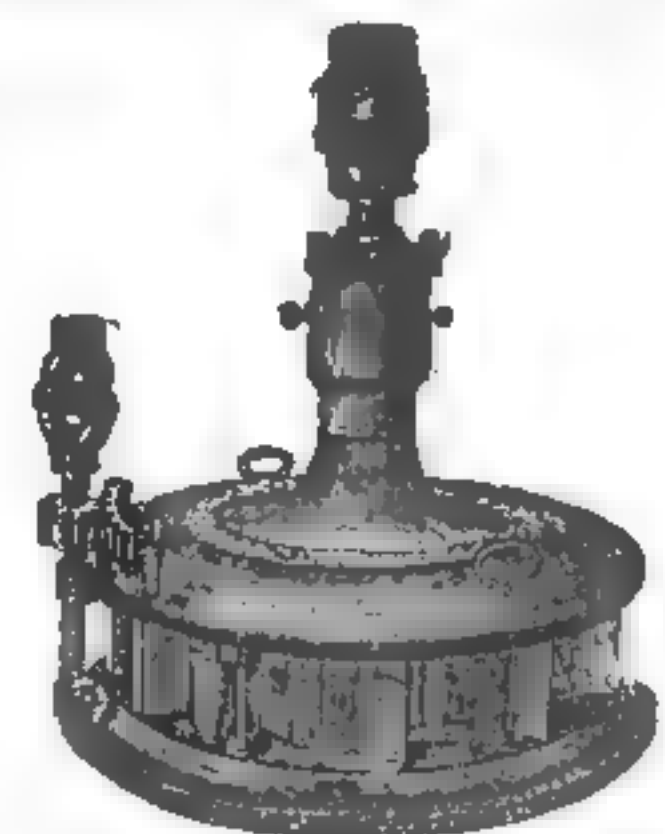
Send for **ILLUSTRATED CATALOGUE and PRICES.**

We also manufacture the **YORK Ice Making and Refrigerating Apparatus.**

FLINT MILL MACHINERY A SPECIALTY.



IMPROVED YORK



TURBINE WATER WHEEL.

SEND for ILLUSTRATED CIRCULAR with PRICES.

NOTES & NEWS

E. R. Goudy, miller, Hilmer, Mont., sold out.
 Sander Bros.' mill, Wellsburg, W. Va., burned.
 B. K. Turner's flour-mill, Congdon, Ky., burned.
 Wm. F. Teter, miller, Port Clinton, Pa., assigned.
 C. A. Cutting, Middleton, Va., started a grist-mill.
 Smith & Wooderd, Abilene, Texas, start a grist-mill.
 J. D. Kelton, Keltonburg, Tenn., builds a roller mill.
 W. A. Baer & Co., millers, Greensburg, Pa., sold out.
 D. Willingham, sr., Jedburg, S. C., builds a grist-mill.
 C. Wyclochek & Co.'s grist-mill, Colby, Wis., burned.
 McCalley & Son, millers, Walla Walla, Wash., dissolved.
 Brebner & Johnson, millers, Alpena, Mich., now I. Brebner.
 Jas. A. Hackney, Concord, Tenn., adds new milling machines.
 O. J. Dundas, Kelso, Tenn., puts in rolls with 40-barrel capacity.
 The Ringo Roller Mills, Waxahatchie, Texas, want flour-dressers.
 C. H. Gunther & Son, San Antonio, Texas, want new round reels.
 J. & R. R. Haven, Washington, N. C., want grist-mill machinery.
 A. H. Armitage, miller, Casnovia, Mich., now Armitage & Bunker.
 Harmes Bros., Fayetteville, Tenn., want rolls and bolting-machines.
 Chas. R. Ross, Madisonville, Ky., improves the Exchange Flour Mills.
 The mills of Oregon are credited with a capacity of about 8,000 barrels a day.
 Jones & Gay, Winchester, Ky., will build a large elevator at Pine Grove.
 The mills of Rochester, N. Y., have a daily capacity of nearly 5,000 barrels.
 Jos. Wilson's oatmeal mill, Fergus, Ont., burned; loss \$15,000; insurance light.
 Mrs. Bonfield's grist-mill, Eganville, Ont., burned; loss \$30,000; insurance \$5,000.
 A. D. Rogers, Huntsville, Ala., will start a roller mill at New Market, in the same state.
 Neely & McCord, Pulaski, Tenn., enlarge their flour-mill and are in the market for machinery.
 Foster & Co.'s elevator, Fostoria, O., burned; loss \$15,000; insurance \$5,000; fired by tramps.
 Chas. W. Seefield, miller and grain-dealer, St. Charles, Minn., has failed; amount \$300,000.
 John C. Bailey and others, Peoria, Ill., incorporated the Peoria Oatmeal Mfg. Co., capital \$50,000.
 W. R. & J. E. Elder, Estill Springs, Tenn., will build a flour and corn mill next summer at Holder's Store.
 J. F. Lewis, flour-mill, Lynwood, Va., sold to Anderson & Coiner for \$3,500; they will put in new machinery.
 West Point, Miss., is to have a \$30,000 flour-mill, to be built by Tennessee men if proper encouragement is given.
 The mills of California above 200-barrel capacity a day number about 30, and their aggregate capacity is about 14,000 barrels a day.
 J. Hiles and others, Havre de Grace, Md., incorporated the Havre de Grace Milling Co., capital \$20,000, to start a 75-barrel roller mill.
 The first cargo of wheat ever exported from Tacoma, W. T., was in 1887. The exports during the past year amounted to 2,528,000 bushels, and the estimate for the present year is 7,500,000 bushels.
 The mills of Minneapolis and vicinity have an aggregate capacity of about 39,000 barrels a day. The total elevator capacity of the city is about 14,100,000 bushels. The cooper-shops of the city sold 2,965,550 barrels in the crop year of 1887-88, against 2,718,900 for the crop year of 1886-7.

In a notice of the seventh annual banquet of the Geo. T. Smith Midlings Purifier Co., Jackson, Mich., the statement was made that the company had paid "25 per cent. dividends" on its capital stock. Of course the statement means "annual dividends," as that great company have paid dividends regularly every year.

Mr. Geo. W. Heartley, the well-known manufacturer of power and hand punching and shearing machinery, of Toledo, O., is doing a large business. His establishment, the Toledo Spring and Variety Iron Works, has recently received from the United States Government an order for mill-picks, to be sent to the San Carlos Indian Agency, Arizona. He is one of the "Old Reliabilities" in trade and deserves all the success he has gained.

It is estimated that about 15,000,000 bushels of wheat are used annually in various manufactures, such as starch, whiskey, food preparations and sizing for cloth and paper. The annual home consumption of wheat for food for the population is placed at $4\frac{1}{2}$ bushels for each person. Some estimates have been made at rates more than this, 4.65, and some less, as low as 4.30 bushels. The generally accepted consumption is $4\frac{1}{2}$ bushels. On this basis the annual wheat consumption of the United States for food, feed, seed and manufactures has been from 1882 to 1888 as follows:

Year.	Food.	Seeding.	Mfg. etc.	Total.
1882-83....	241,552,589	51,151,929	15,000,000	307,704,518
1883-84....	249,079,653	50,308,718	15,000,000	314,388,371
1884-85....	256,394,907	54,476,684	15,000,000	325,871,591
1885-86....	263,301,408	52,440,000	15,000,000	330,741,408
1886-87....	270,071,618	50,792,534	15,000,000	335,864,152
1887-88....	277,678,539	52,440,000	15,000,000	345,118,539
1888-89....	285,750,000	51,092,817	15,000,000	351,842,817

The increase in home requirements from 1882-83 to 1888-89 has been 44,138,299 bushels. If the average net exports in previous years be kept up there will be required an increase in the wheat production of the United States.

BOOKS AND PAMPHLETS.

The J. B. Allfree Co., Indianapolis, Ind., have sent out a neat colored illustrated and descriptive circular showing some of their excellent machines and the endorsements of them by prominent purchasers. The circular also contains a complete plan for one of the Allfree 50-barrel mills. Address them for a copy.

The February number of *Godey's Lady's Book* is a very valuable and interesting one. The illustrated story "After All" is one of rare merit. "Philip Ward's Strange Adventure" is strange enough to awaken the liveliest interest. Augusta deBubna contributes a valentine story, "In the Heart of a Rose," which takes the reader behind the curtain of a charity fair. "A Woman's Way," by Elsie Snow, is gracefully and acceptably continued. "Two in One Tomb" may cause a little shuddering, but it is well worth reading. "The Queer Adventures of A Valentine" is not only good, but peculiarly seasonable. So is Ada Marie Peck's "A Modern Winter Tale."

Among the most important of recent additions to the literature of milling may be ranked the neat 48-page book just sent out by that well-known milling writer, Mr. R. James Abernathy, of Kansas City, Mo. This volume is entitled "The True Short System." It contains a brief and authoritative history of the short system of milling in the United States and valuable articles on the system which embody the author's long practical experience in that line. The chapters on wheat-heating, wheat-cleaning, roll surface, roller feeds, double-belt drive, custom mills, flow-sheets (illustrated), three-break systems, patent flour, systems of building mills and arranging machinery, and other topics are full of interest. Every miller in the United States should have a copy of Mr. Abernathy's book, the price of which is \$2. Any intelligent miller who reads it can become an expert in the short system. The book is published by Mr. Clifford Hall, editor of "The Modern Miller." It may be obtained from THE MILLING WORLD on especially attractive terms. For particulars see advertisement on another page in this issue. Every miller who favors the short system needs the book. Every miller who opposes the short system needs the book. Every miller who is neutral on the subject of system needs it. All need it. Send for it and read it.

ATTENTION MILLWRIGHTS!

A BOOK YOU ALL WANT.

LEFFEL'S CONSTRUCTION OF MILL DAMS AND BOOKWALTER'S MILLWRIGHT & MECHANIC A STANDARD WORK.

This practical work of 288 pages gives with full illustrations and complete detail how to build or repair all kinds of mill dams.

PRICE FIFTY CENTS.

Or will be sent with a copy of "THE MILLING WORLD" for one year (postage prepaid) for \$1.25.

—ADDRESS—

McFAUL & NOLAN,
DRAWER 208, BUFFALO, N. Y.

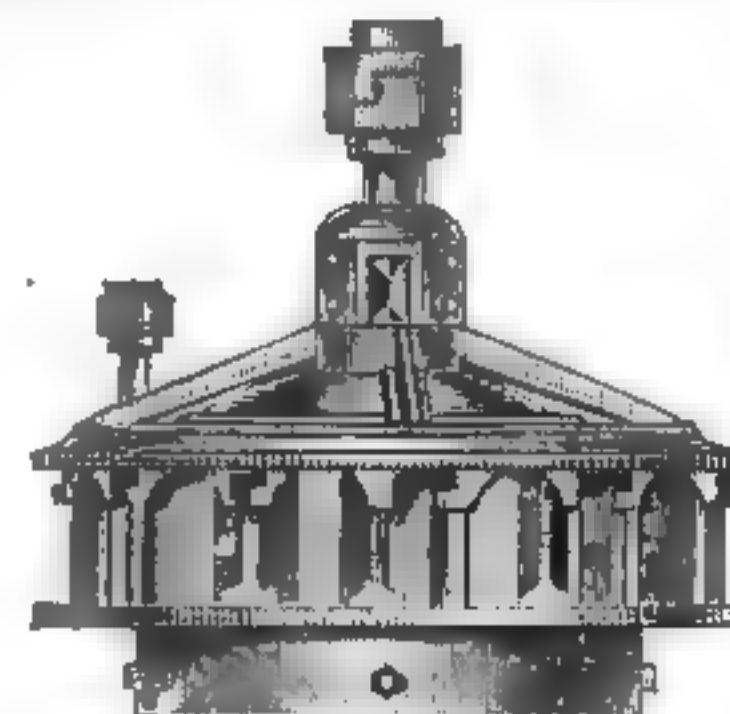


THIS LATEST NOVELTY FREE.
 Flowers large and fragrant. Color a soft, satiny pink, distinctly striped and dashed with white and carmine. Free bloomer. Price, \$1.00, including copy of Floral Guide, if desired. Write for instructions how to get plant free.
 VICK'S FLORAL GUIDE for 1889, Pioneer Seed Catalogue of America, revised, enlarged, new shape, new type, elegant cover, frontispiece, and 3 Colored Plates. Illustrations and descriptions of every popular plant, flower and vegetable, and prices of same. Only 15 cents, with certificate good for that amount in seeds.
 JAMES VICK SEEDSMAN, Rochester, N. Y.

THE INK
 WITH WHICH THIS PAPER IS PRINTED
 IS MADE BY THE
QUEEN CITY PRINTING INK CO.
 CINCINNATI, O.

THE IMPROVED "SUCCESS" THIS WHEEL IS BOTH DURABLE AND CHEAP PERCENTAGE: {

Full Gate..... 86.29
 $\frac{3}{4}$ Gate..... 86.07
 $\frac{1}{2}$ Gate..... 81.95



SEND FOR PAMPHLET TO

S. Morgan Smith, York, Pa.

WANTED

The MILLERS of the United States and Canada to write us for our new pamphlet and revised price list of our JONATHAN MILLS **UNIVERSAL FLOUR DRESSER**. The best machine on the market. The fact that not a single one has ever been displaced by any other Reel speaks volumes.

We carry a full line of Heidegger & Co.'s Bolting Cloth and Gritz Gauzes. Give us trial order.

THE JONATHAN MILLS MFG. CO.,
CLEVELAND, OHIO, U. S. A.

L. L. WHITLOCK,
Advertising Agent

FOR MANUFACTURERS.

TRADE JOURNALS A SPECIALTY.

P. O. DRAWER 5323. Boston, Mass.

As Agent for Advertisers instead of Papers, I obtain the Best Rates Possible for my Customers.



THIS WHEEL GIVES HIGH RESULTS, AND IS ACKNOWLEDGED THE BEST, MOST PRACTICAL AND EFFICIENT TURBINE MADE. FOR SIMPLICITY, DURABILITY, AND TIGHTNESS OF GATE IT HAS NO EQUAL.

State requirements and send for Catalogue to

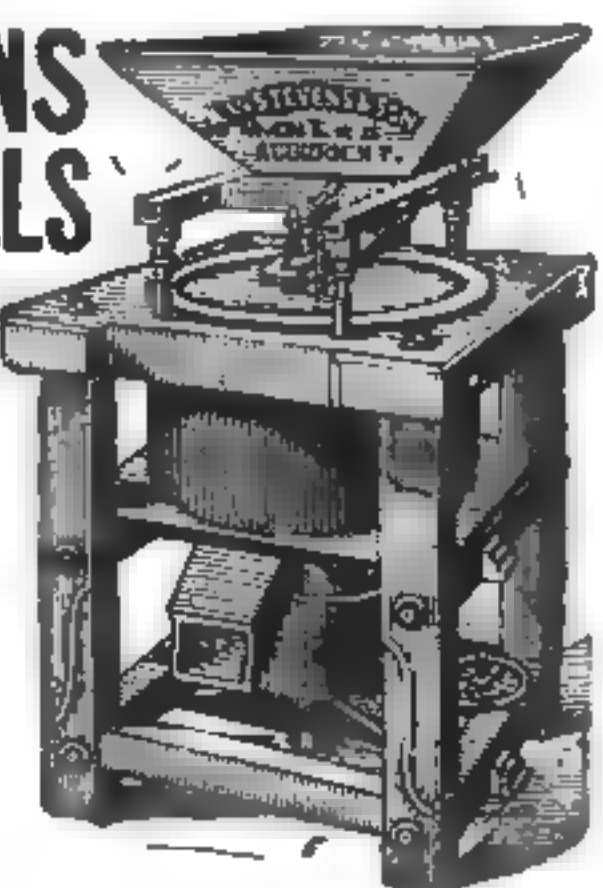
T. C. ALCOTT & SON,
MOUNT HOLLY, N. J.

PLEASE mention THE MILLING WORLD when you write to advertisers. It will pay you to do this.

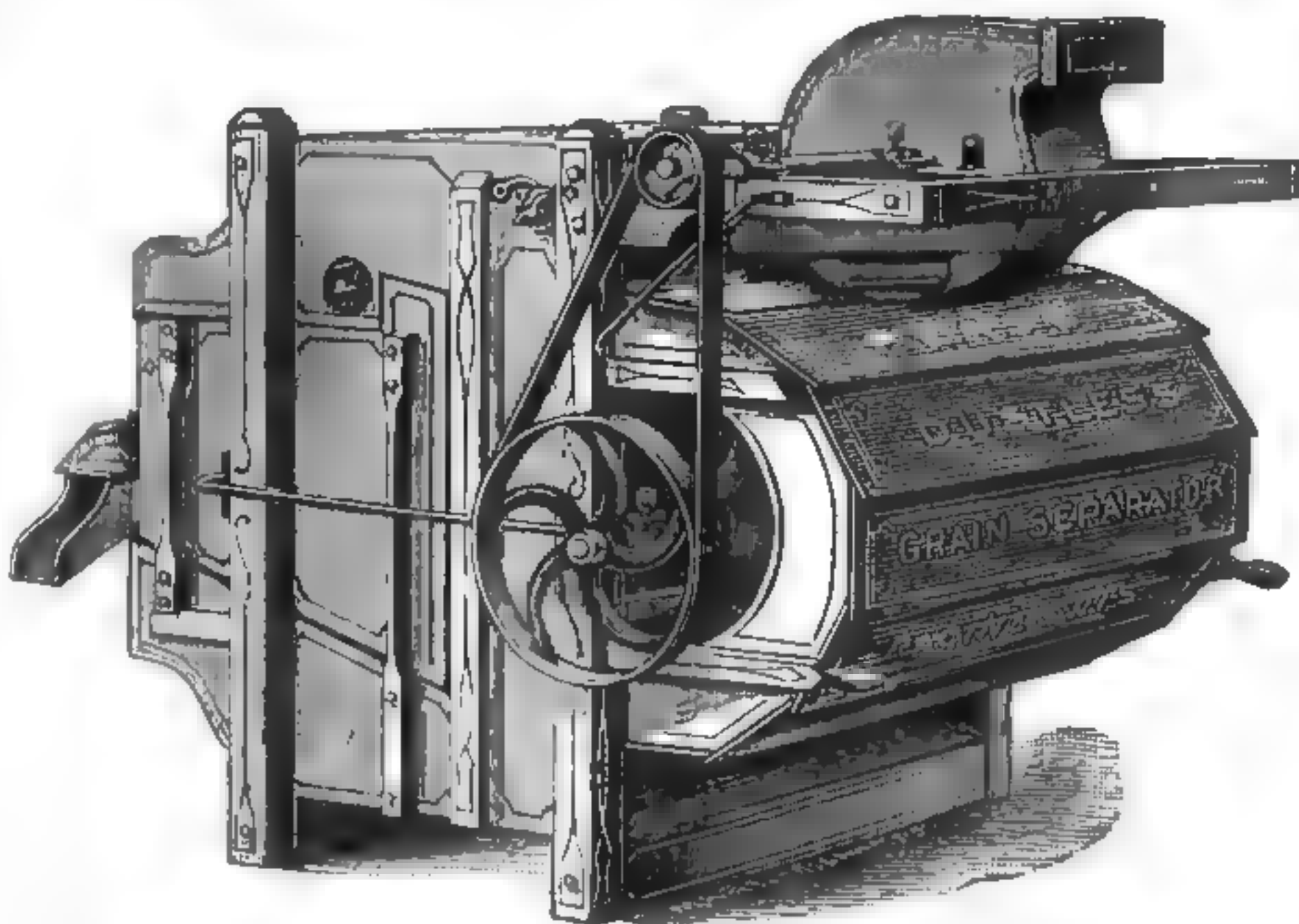
THE STEVENS PORTABLE MILLS

For CORN and FEED GRINDING

Genuine French
BUHR STONES
Power Corn Sheller
Prices Below the Lowest
A.W. STEVENS & SON
AUBURN, N. Y.
Mention this paper.



THE "PEASE" DUSTLESS GRAIN SEPARATORS.



These Separators not only clean grain, but separate and **SCREEN** it. They require less space, and less power than any others, and are less expensive.

FANNING MILLS, both side shake (for hand use or power) and also the famous "Pease" end shake mills, for all kinds of grain. Various sizes—capacity 100 to 500 bushels per hour.

—THE—

W. G. ADAMS
POWER
CAR PULLER.

Elevator Supplies of All Kinds.

For Full Descriptive Catalogues and Prices,
Address the
E. H. PEASE MANUFACTURING CO., RACINE, WISCONSIN.

The Best



WASHER

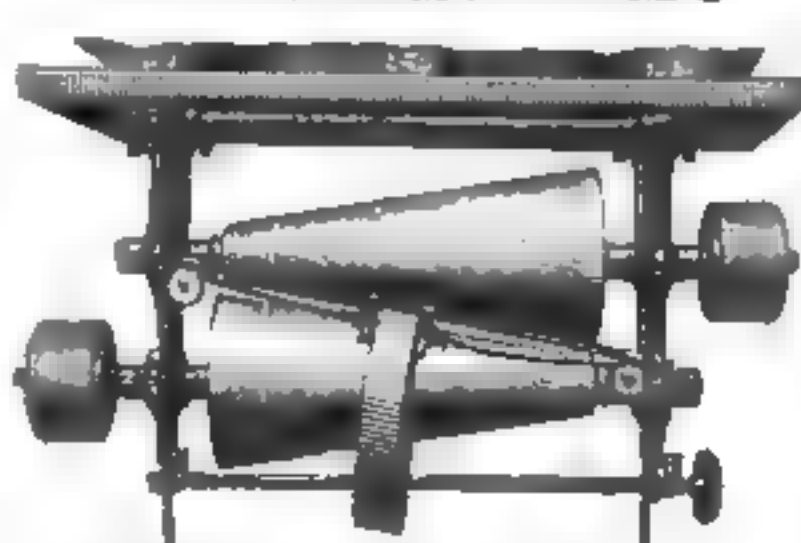
We will guarantee the "LOVELL" WASHER to do better work and do it easier and in less time than any other machine in the world. Warranted five years, and if it don't wash the clothes clean without rubbing, we will refund the money.

AGENTS WANTED in every county. We can show proof that agents are making from \$75 to \$150 per month. Farmers make \$200 to \$600 during the winter. Ladies have great success selling this Washer. Retail price, only \$5. Sample to those desiring an agency \$2. Also the Celebrated **KEYSTONE WRINGERS** at manufacturers' lowest prices. We invite the strictest investigation. Send your address on a postal card for further particulars.

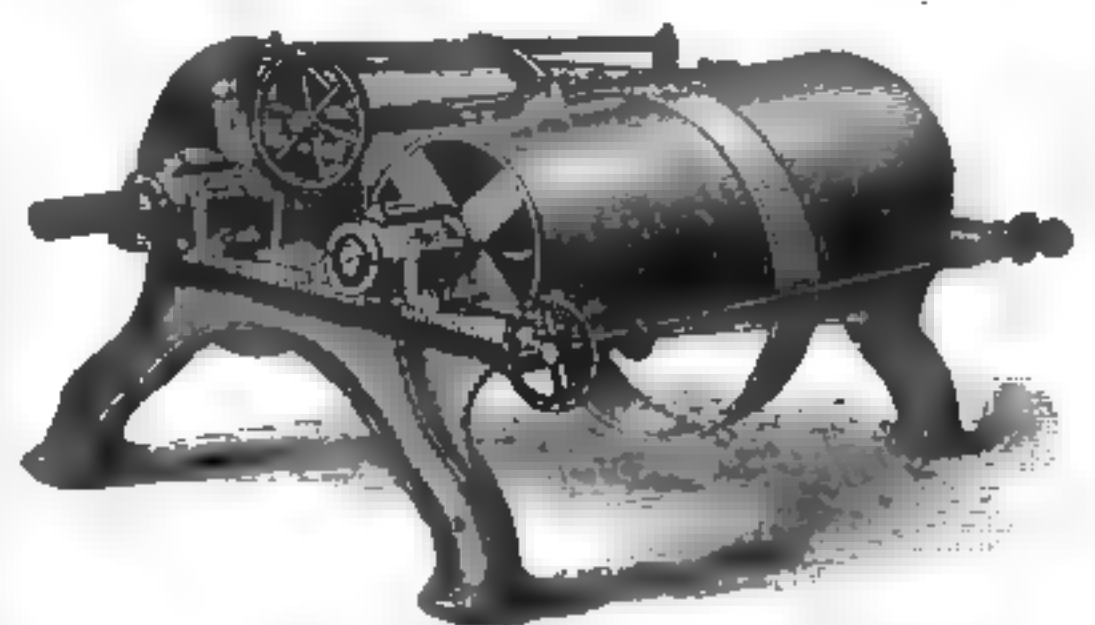
LOVELL WASHER CO., Erie, Pa.

THE EVANS FRICTION CONE & FRICTIONAL GEARING

"PATENTED."



This cut represents a set of hanging cone pulleys. This pattern is intended for that class of machinery that stops and starts at the same speed, and at the same time be able to change the speed more or less while running. These cones are also fitted with a governor where a steady motion is required and the initial power is



fluctuating. All sizes made from $\frac{1}{2}$ Horse Power to 50 Horse Power. **SEND FOR ILLUSTRATED CATALOGUE.**

EVANS FRICTION CONE CO., 85 Water St., BOSTON.

EUROPEAN ECHOES.

SAYS the London "Miller" of January 7; Chiefly in the shrinking exports of American flour the English trade is finding a freedom in action to which it has been a stranger for several years.

THE estimated requirements of France of foreign wheat for this year are 45,000,000 bushels. During the first four months of the crop year, Aug. 1 to Nov. 30, France imported for consumption 17,753,503 bushels of wheat in 1888, against 10,082,630 bushels in 1887, and 13,679,507 bushels in 1886. The supply from Russia in the four months was nearly double last year.

THE authorities of the Buda-Pesth Corn Exchange have passed a resolution the effect of which will be to withdraw from the cognizance of the committee transactions of a purely gambling nature. Firms that open large accounts without requiring cover will necessarily do so at their own risk. This measure is said to have been forced on the committee by the alarming increase of purely speculative business, in which every kind of "outsider" took part, not excluding ministers of religion.

THE Agricultural Society of Vienna has recently petitioned the Government to take measures to enforce the proposal made not long since by the Austrian Millers' Association for the exaction of a deposit of at least one florin, 40 cents, as cover for every metercentner, 220.46 pounds, of grain sold forward on the corn exchange. An old miller writing to *Pappenheim's Mueller Zeitung* on this subject remarks that one of the evils springing out of the facility with which any quantity of wheat may now be bought any time in advance without any deposit is a remarkable recklessness among millers in the matter of forward sales. He speaks of bakers holding sale notes a year or even more in advance.

ACCORDING to a statement sent out by a Liverpool firm of flour-dealers on January 4, 1889, the stocks of wheat and wheat flour in the United Kingdom amounted to 1,813,331 quarters of wheat and 600,000 quarters of flour, a total of 2,413,331 quarters, on the last day of 1888, against a total of 2,384,438 quarters on the last day of 1887. The same statement set down the estimated visible wheat supply in various countries as follows:

	January 1		
	1889.	1888.	1887.
	Quarters.	Quarters.	Quarters.
Stocks in the U. K.....	2,500,000	2,500,000	2,000,000
Afloat for Europe.....	2,677,000	1,672,000	2,823,000
Visible supply in the U. S.....	6,750,000	8,750,000	11,000,000
Stock in French ports	1,500,000	600,000	400,000
Stock at Antwerp.....	350,000	150,000	200,000
Stock at Odessa.....	1,500,000	917,000	558,000
Stock in Dutch ports	40,000	47,000	65,000
Total.....	15,317,000	14,636,000	17,046,000

THE output of the wheat crop in Europe in 1886-87 was about 1,178,636,000 bushels, against about 1,218,000,000 bushels in 1885-86. The output in 1887-88 was considerably under average. The world's wheat production in 1886-87 was about 2,032,000,000 bushels, against 2,110,000,000 bushels in 1885-86. The world's wheat crop of 1888 is estimated within the range of 25,000,000 to 85,000,000 bushels less than the crop of 1886-87, most of the estimates being under 40,000,000 bushels less than the output of 1886-87. The deficiency on the eastern coast of the United States was more marked than elsewhere.

SAYS the London "Millers' Gazette" of January 7: It is very pleasant to be able to state that the past year has been a more satisfactory one all around, commercially speaking, than several of its predecessors; and the milling trade has participated in an important degree in the general improvement. Several circumstances have combined to bring about

this desired result. First of all, there is much more confidence in the trade, an element which for years has been lacking; secondly, there has been a partial failure of the world's crops, leading to higher prices for wheat and a better trade for flour; and thirdly, the American crop has been so short that prices on that side of the Atlantic have been driven so much above our level that American millers have for the past four months been unable to manufacture flour for export at any thing like the price obtainable on this side. Thus the great American competition, which is credited with being the cause of all the ills from which the milling trade has suffered for the past five years, has now become practically innocuous and ineffectual. This, doubtless, is the main reason why the British and Irish miller has had a more remunerative business during the past six months than perhaps he has enjoyed for some years past. But the fact that strong Russian wheat, which many millers prefer to American red sorts, has been abundant and cheap for the past eighteen months, has been a very powerful lever in the hands of our millers, who, with improved mills and improved means of cleaning these wheats from the admixture of foreign substances unfortunately to be found in Russian wheats, have not felt the absence of red American wheat to any appreciable extent. The year's imports of wheat and flour have, however, been large, thanks to the liberal supply from Russia, and compare with previous years as follows:

	Wheat.	Flour (as wheat)	Total.	Prop'n of Flour
	Qrs.	Qrs.	Qrs.	to the whole.
1888....	13,300,000	5,412,000	18,712,000	29 per cent.
1887....	13,016,000	5,811,000	18,827,000	31 "
1886....	11,061,000	4,264,000	15,325,000	27 "
1885....	14,340,000	5,016,000	19,356,000	25 "

COTEMPORARY COMMENT.

The American term for maize is corn, or Indian corn. Why not say American corn instead of Indian corn?—*Cincinnati Price Current*.

The Milwaukee meeting did not accomplish any positive results, but by the course pursued and the intentions made manifest that which we predicted has been brought about. Every newspaper in the land is now busy educating the people into the belief that the millers of the country are conspiring to make them pay abnormal prices for bread, and they have reason for it.—*Modern Miller*.

The commissioner of agriculture at Washington now says the late estimate was for the crop in measured bushels without regard to quality. If reduced to bushels of 60 pounds it would represent less than 400,000,000 bushels. The weight will be estimated as usual, in March, from records of weighing by millers, from the commercial inspection records, and the result of other investigations.—*Minneapolis Market Record*.

It is with mixed feelings one reads that during the half-year ending December 31st the United States debt has decreased by \$31,522,398 whereas that of Canada has increased to the tune of \$11,326,215. Allowing for relative population, our colony has been going it pretty fast, having a debt of \$284,513,841, against only \$1,134,062,257 owing by the United States.—*London, England, Financial Times*.

The June report of the Agricultural Bureau gave the acreage of spring and winter wheat at "about 36,000,000," and in none of the subsequent monthly bulletins was there conveyed any intimation that that estimate was incorrect or in need of amendment, yet in the report just issued the area is given at 37,336,138 acres. Now the question is where were the additional 1,336,138 acres between June and December?—*Chicago Daily Business*.

There are a great many people who seem to think that their success in life depends upon certain conditions, are always finding fault because those conditions are not in accordance with their ideas.—*Manufacturers' Gazette*.

We have patiently read the views of both sides and, like a court of justice, we are bound to decide against alum in bread because the most of the witnesses testify against the same.—*Anti-Adulteration Journal*.



RELiance OIL & GREASE CO., CLEVELAND, O.,

— MANUFACTURERS OF —

Finest Lubricants for Milling Plants. A Challenge to the World.

WRITE US. "VALVE OLEINE"—875 Degrees Fire Test, Cylinder Oil.

"CHIEF"—Roller Mill Lubricant.

"NIAGARA"—Belt Grease.

"RUSSIAN"—Engine and Machine Oil.

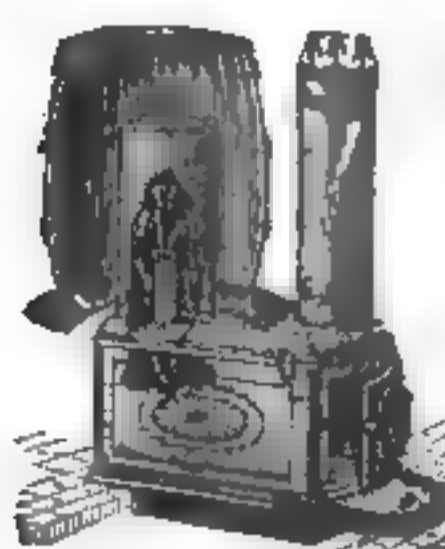
"ANCHOR"—Roller Mill Grease.

"CHELSEA"—Scale Solvent, Best on Market.

Agents Wanted.

FREE—SAMPLES, CATALOGUE, AND ALL INFORMATION.

SPECIAL
HIGH GRADE
PRODUCTS



**MOORE'S
PATENT
BARREL HEATER.**

For all
kinds of coop-
erage. Thousands
in use in all parts of the
U. S. Send for Circular.

JOLIET STOVE WORKS JOLIET ILL.



STANDARD SCIENTIFIC BOOKS.

THE PUMP CATECHISM—By Robert Grimshaw, M. E. A Practical Help to Runners, and Makers of Pumps of any kind. Just out. In cloth, one volume. Price postpaid..... \$1.00

A TREATISE ON FRICTION AND LOST WORK IN MACHINERY AND MILL WORK—By Robt. H. Thurston. Containing an explanation of the Theory of Friction and an account of the various lubricants in general use, with a record of various experiments to deduce the laws of Friction and Lubricated Surfaces. Copiously illustrated. 8 vo., cloth.. \$3.00

KNIGHT'S MECHANICAL DICTIONARY—By Edward H. Knight, A.M., L.L.D. A book for all persons who make, buy, sell, use or want to know anything about tools or machines, now complete in four volumes, bringing the record down to this time. Sheep; 4 volumes.. \$31.50

THE AMERICAN HOUSE CARPENTER—By R. G. Hatfield, (1880). A Treatise on the art of Building, comprising styles of architecture, strength of materials, theory and practice of construction of floors, framed girders, roof trusses, stairs, doors, windows, mouldings and cornices. Numerous fine wood engravings. 8 vo., cloth..... \$5.00

A MANUAL OF CATTLE FEEDING—By H. P. Armsby, Chemist of the Connecticut Agricultural Experiment Station. With plates; 12 mo., cloth..... \$2.50

A TREATISE ON TOOTHED GEARING—By Howard J. Cromwell. 12 mo., cloth. Complete Instructions for Designing, Drawing and Constructing spur Wheels, Bevel Wheels, Lantern Gear, Screw Gear, Etc., Etc..... \$2.00

STEAM ENGINE CATECHISM—By Robert Grimshaw. A Series of thoroughly practical questions and answers arranged so as to give to a young engineer just the information required to fit him for properly running an engine. 18 mo., cloth..... \$1.00

THE WINDMILL AS A PRIME MOVER—By A. R. Wolf, M. E. Comprehending everything of value relating to windmills, their use, designs, construction, etc. With many fine illustrations. 8 vo., cloth..... \$2.00

BOOKKEEPING & ACCOUNTANTSHIP—By Thomas Jones. For self-instruction or office reference. Based on twenty years experience in teaching. 8 vo., cloth..... \$2.50

THE ARCHITECT AND BUILDERS POCKET-BOOK—By F. E. Kidder. With original tables and valuable information for architects, builders, engineers and contractors. Fully illustrated. In Pocket-Book form. Morocco..... \$3.50

Any book extant at lowest prices. Great inducements to parties collecting libraries.

McFAUL & NOLAN, BUFFALO N. Y.

WIRE BOLTING CLOTH—STEEL, BRASS & TINNED

—[ESTABLISHED 1844]—

Exclusive Manufacturers of the

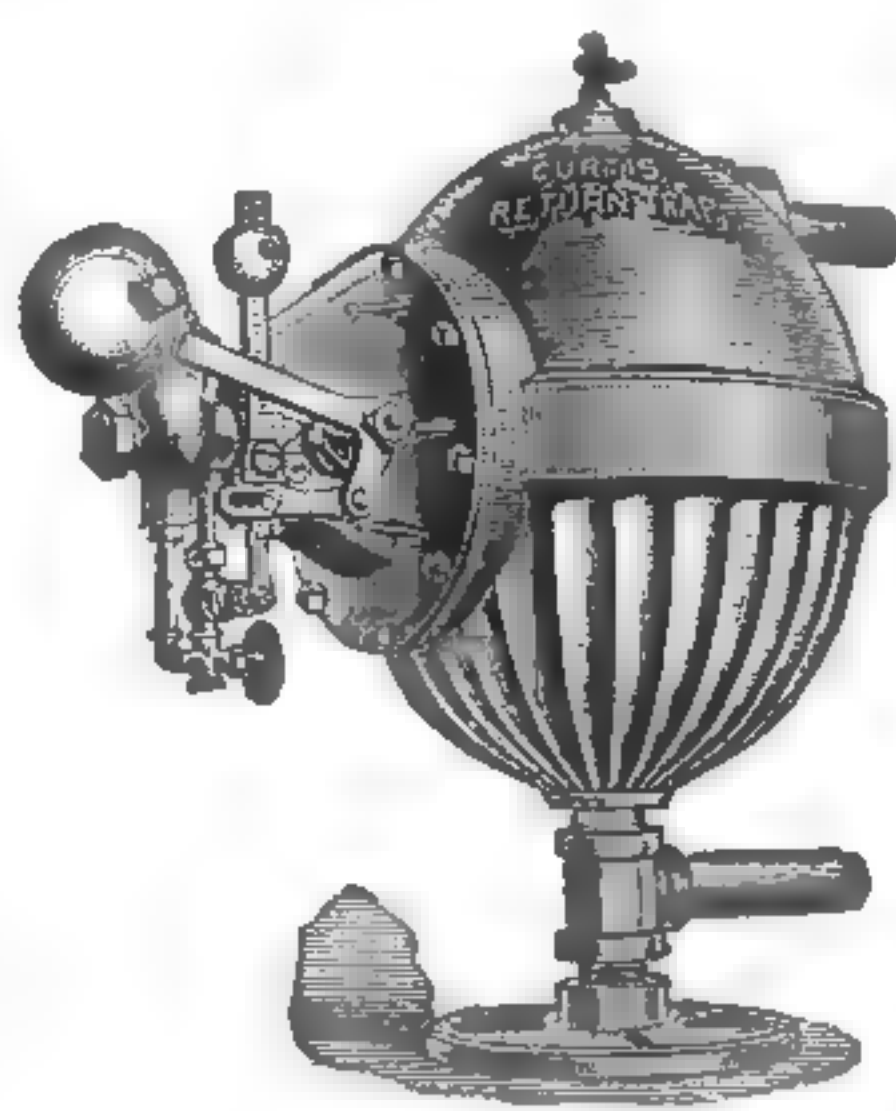
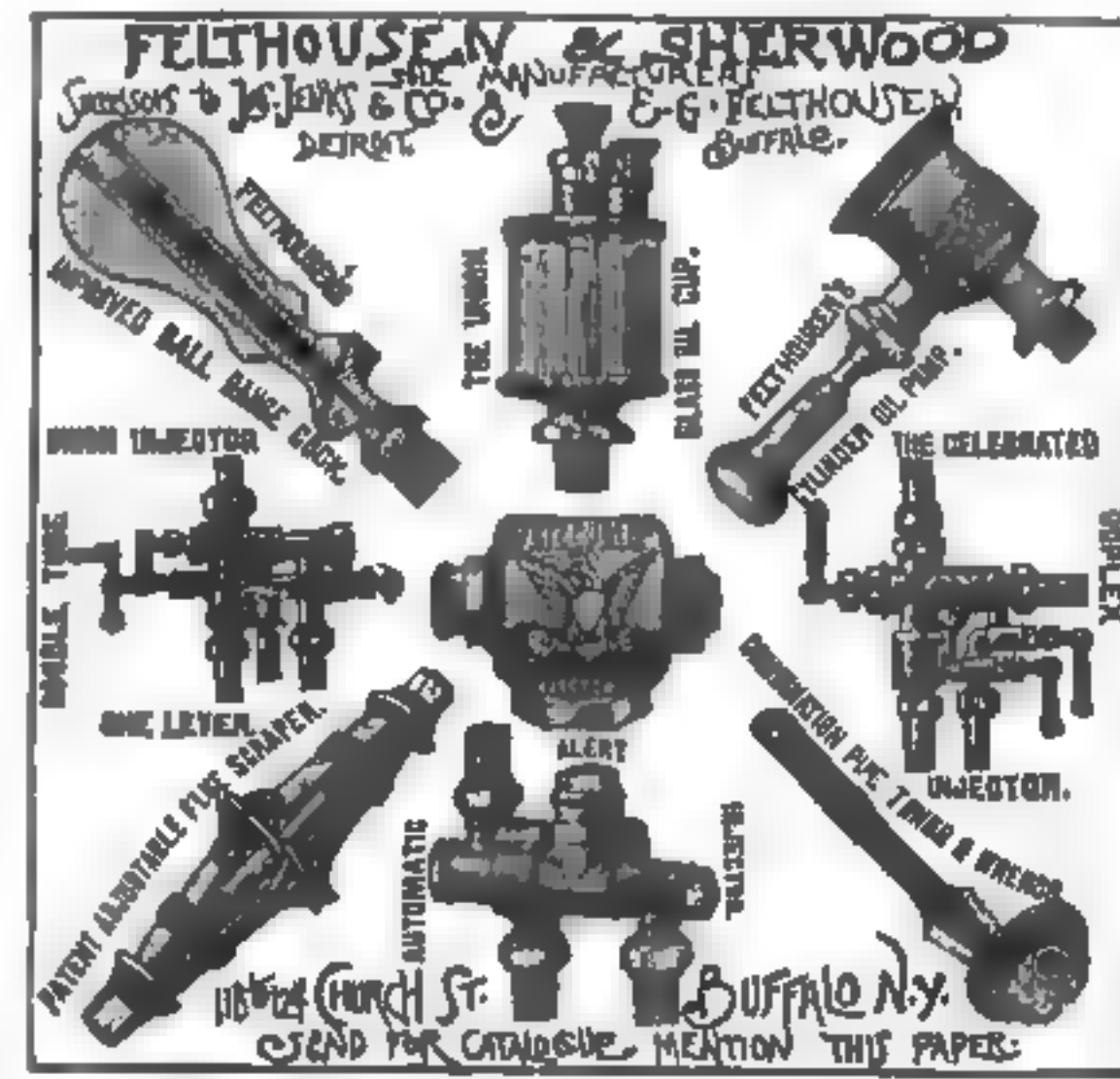
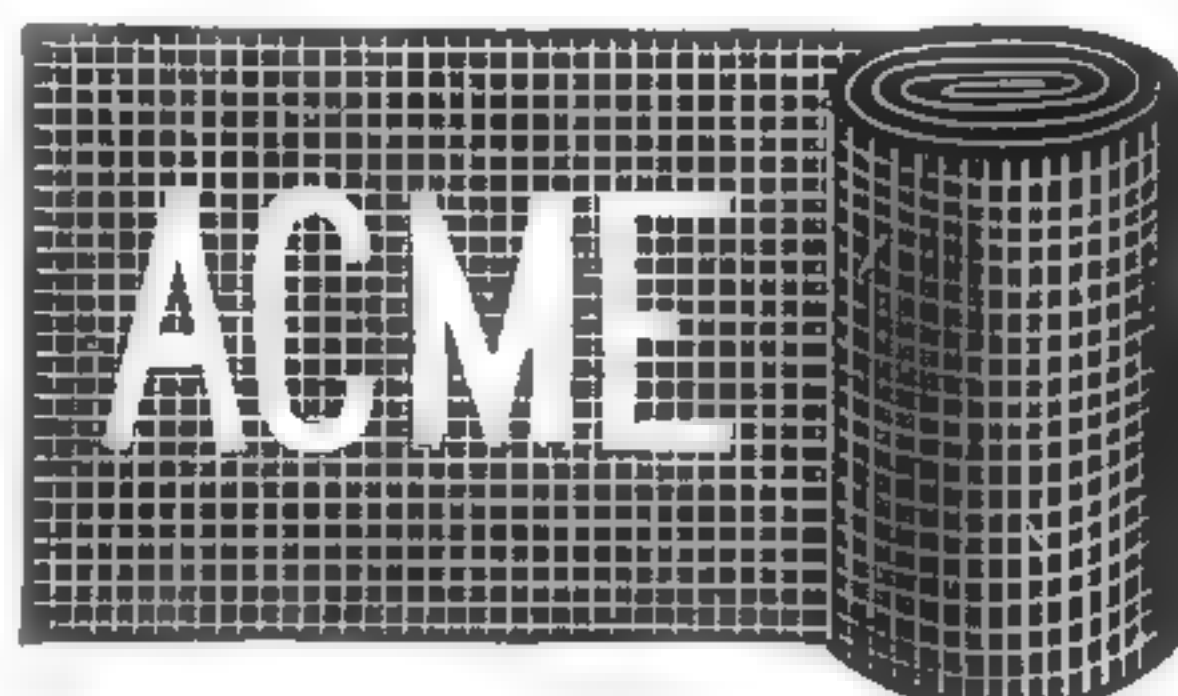
"ACME" STEEL TEMPERED BATTERY & BOLTING WIRE CLOTH.

Also manufacturers of Bran Duster Cloth, Plated Wire Mill Screen Cloth, Smut Cloth, Brass and Copper Wire Cloth. A full line constantly on hand. Send for samples and price lists.

Brooklyn Wire Cloth Works.

NO. 107 JOHN STREET, NEW YORK.

CLOTHS MADE UP WITH PATENT BINDING WHEN DESIRED.



THE CURTIS

PATENT RETURN STEAM TRAP.

It is noiseless, positive, rapid, will return all condensation back into the boiler, and works equally well in connection with reduced pressure or exhaust steam, also when the return is below the water line of the boiler.

THE CURTIS REGULATOR COMPANY,
NO. 74 BEVERLY ST., BOSTON, MASS.

GENERAL AGENCIES.

NEW YORK, 109 Liberty st.

PHILADELPHIA, 2035 N. Front st.

MINNEAPOLIS, 210 S. Third st.

CHICAGO, 218 Lake st.

ST. LOUIS, 707 Market st.

NEW ORLEANS, 21 Union st.



OFFICE OF THE MILLING WORLD,
BUFFALO, N. Y., January 26, 1889.

On Friday of last week the bullish tendency in the breadstuffs markets was more marked. January wheat rose to 97½c. and May to \$1.02½ at closing. Options only 200,000 bushels in New York. January corn closed at 44½c. and oats at 32c. Wheat flour was dull and neglected. The minor lines were featureless.

On Saturday some realizing in New York and Chicago made the markets dull, easy and lower, with January wheat closing at 97½c. Options only 500,000 bushels. January corn closed at 44½c. and oats at 31½c. Wheat flour was dull and unchanged, with holdings slightly more steady. There was some export inquiry for the West Indies. Other lines were unchanged.

On Monday there was some improvement on large buying and selling in Chicago and the large decrease in the visible supply. January wheat opened at 86½c. and closed at 87c. Options 3,750,000 bushels. Chicago speculators are thought to be planning a deal on the wheat market, as large sales, amounting to nearly 4,000,000 bushels of contract wheat, were reported in that city. The names of the buyers could only be guessed at, but the fact of the absorption of so large an amount made the dealers nervous. January corn closed at 43½c. and oats at 31½c. Wheat flour was dull but generally steady. Sales were moderate and export demands were small. The other lines were featureless.

The visible supply in the United States and Canada was:

	1889.	1888.	1887.
Jan. 19.	Jan. 21.	Jan. 22.	
Wheat.....	36,596,870	42,361,250	61,964,599
Corn.....	13,285,699	6,677,034	16,404,940
Oats.....	8,395,027	5,590,309	4,774,228
Rye.....	1,684,261	311,015	444,237
Barley.....	2,384,214	2,994,916	2,420,235

On Tuesday realizing by longs in wheat, corn and oats made the markets weak, active and lower. In New York January wheat opened at 97c. and closed at 95½c. Options 2,500,000 bushels. January corn closed down at 43½c. and oats at 31½c. Wheat flour was dull and on most lines unchanged, with little trade. The minor lines were featureless.

On Wednesday there was heavy realizing on stop orders at under \$1 that caused a heavy break in wheat. As a result January wheat closed at 93½c., February at 94½c., March at 95½c., May at 98½c. and June at 98½c. Options 12,000,000 bushels. There was no concentrated buying and in New York the whole crowd was bearish. Even a decided increase in export demand did not check the bearish tide. Export orders were large and inquiries numerous, the fall having brought American wheat down nearly to the European offers. January corn ruled at 43c. and oats at 31c. Wheat flour opened dull and unchanged, but closed weak in sympathy with wheat. Buyers held off, hoping to see wheat down to 90c. for May, which is promised by the bears, and sellers were inclined to sell before any further break in wheat occurs. The market was full of soft spots. Export sales were reported. The minor lines were featureless.

On Thursday there was less liquidation and the markets became somewhat stronger. January wheat closed at 93½c. and May at 98½c. Options 8,250,000 bushels. Export business was brisk during the day; a number of loads sold for various foreign ports. January corn closed at 43½c. and oats at 31½c. Buckwheat grain was nominally 60@62c. Rye was 52@57c for Jersey and Pennsylvania on track, and 60c. on track bid for No. 1 State, with 65c. asked afloat. Barley was nominally as follows: 76@-

78c. for two-rowed; 70@82c. for six-rowed; 83@85c. nominally for extra No. 2 Canada and 87@88c. for No. 1. Malt was nominal at \$1.10-1.12 for city, 90c. for 2-rowed and 98c. for 6-rowed State. Mill-feed was dull and weak at the following quotations: 65@75c. for the whole range of 40, 60 and 80 lbs spring and winter; 80@85c. for 100 lbs; 90c. for sharps; 80c. for rye; screenings, 50@80c; oil meal, \$1.45@1.50; cotton meal, \$1.25@1.28; barley meal, 90c. Rye flour was quiet and weak at \$3 for round lots, with jobbing quoted at \$3.15. Buckwheat flour was dull at \$2@2.15. Corn products were quiet but firm at the following quotations:

Coarse, 83@85c; fine yellow, \$1@1.03; fine white, \$1.00@1.05; Western and Southern in barrels, \$2.85@2.90; Brandywine and Sagamore, \$3.00; granulated, \$3@3.30; grits, \$2.75@3.00; corn flour \$3@3.25; hominy and samp nominal.

Wheat flour was wholly nominal, except in the case of job lots, which were taken only on compulsion and in lots to meet the wants of the pressing trade. The quotations were as follows:

SPRING FLOUR.

	Sacks.	Barrels.
No grade.....	\$1.90@2.15	\$....@....
Fine.....	2.15@2.40	2.50@2.80
Superfine.....	2.65@3.10	3.20@3.35
Extra No. 2.....	3.30@3.45	3.45@3.65
	New. Old.	New. Old.
Extra No. 1.....	3.70@4.40	3.80@4.40
	New. Old.	New. Old.
Clear.....	3.90@4.65	4.40@4.90
Straight.....	5.15@5.65	5.65@5.90
Patent.....	5.75@6.40	6.25@6.80

WINTER FLOUR.

	Sacks.	Barrels.
No grade.....	\$1.90@2.15	\$....@....
Fine.....	2.50@2.75	2.70@2.90
Superfine.....	3.15@3.30	3.25@3.40
Extra No. 2.....	3.30@3.45	3.60@3.80
Extra No. 1.....	3.70@4.65	3.90@5.40
Clear.....	4.20@4.50	4.40@4.80
Straight.....	4.90@5.15	4.90@5.50
Patent.....	5.15@5.50	5.30@6.15

CITY MILLS.

W. I grades.....	\$5.00@5.15
Low grades.....	2.35@2.75
Patents.....	5.90@6.25

BUFFALO MARKETS.

FLOUR—City ground—Patent spring, \$7.25@7.50 straight Duluth spring, \$6.75@7.00; bakers' spring, \$5.25@5.50; red winter \$6.00@6.25; white winter, \$6.00@6.25. Western—Patent spring, \$7.25@7.50; straight Minnesota, \$6.75@7.00; Minnesota bakers \$5.25@5.50; r. d winter, \$6.00@6.25; white winter, \$6.00@6.25; low grade flour, \$4.00@4.50; Graham flour \$6.00@6.25; rye flour, \$4.80@4.25 per bbl; buckwheat flour, \$1.75 per 100 lbs. **OATMEAL**—Akron, \$6.45; Western, \$6.20 per bbl. **CORNMEAL**—Coarse, 90c.; fine 15c.; granulated, \$1.75 per cwt. **WHEAT**—Chicago May opened at 97c. and closed at 97½c. Limits unchanged; 88c for old No. 1 hard, 22c for New No. 1 hard, 15c for No. 1 Northern, and 10c over May for No. 2 Northern. The demand for spring was fair at a shading of limits, sales including 5,000 bu old. No. 1 hard at \$1.23½, 5,000 bu new No. 1 hard at \$1.10 and 500 bu do do at \$1.20½, old No. 1 hard closing nominal at \$1.29½; new No. 1 hard at \$1.20½, No. 1 Northern at \$1.12½, and No. 2 Northern at \$1.07½; winter wheat quiet; sale 1 carload No. 2 red early at \$1.00½, and 2 do No. 1 white later at \$1.05½@1.06; Toledo and Detroit were 1@2c better in the afternoon, and the market here for No. 2 red closed at \$1.02 and No. 3 red at 90c. **CORN**—Quiet closing firm; sales 1 carload No. 4 at 36½c, 4 do No. 3 at 37½c, and 1 do No. 3 yellow at 38½c, all on track; Chicago Jan. advanced ¼c. **OATS**—Weak with a fair demand; sales early were 3 carloads poor No. 2 white at 31½c; 3 do do at 31½c; in the afternoon 3 do good No. 2 white at 32½c, 1 do No. 3 white at 30c, and 1 do No. 2 mixed at 28½c. **BARLEY**—The market is at a standstill at irregular prices; No. 1 Canadian quoted at 79@80c, yet some holders are asking 82c; No. 2 do at 75@76c, No. 3 extra at 70@72c, No. 3 at 65@68c. **RYE**—No. 2 nominal at 54c. **RAILROAD FREIGHTS**—To New York, Baltimore, and Philadelphia rate points on grain flour, and feed, 13c, per 100 lbs; to Albany and West Troy, 10½c; to Boston, 15½c.

Says an exchange: California crop prospects are in the highest degree encouraging, and that fact is hurrying the old surplus out of the state. Oregon and Washington are the same. The Pacific coast shipment in Dec. equaled 4,000,000 bushels. The crop prospects in India are average and in some quarters are estimated above that, and the shipments thence are increasing, and India's surplus will also be moved forward. Foreign stocks in store and the ocean stocks are undoubtedly liberal, a condition so exactly opposite to the expectations and prophecies in September last as to be almost beyond belief. The spring will unloosen in southern Russia larger supplies of wheat. All these are important indications and dealers can give them their due consideration. Under the retrospective mentioned wheat at the seaboard looks cheap, but that question will be decided by a consumptive demand from some source.

Writing from Salina, Kan., January 20, Mr. T. Miller says: "We had about 1,500,000 bushels of winter wheat of good quality in this, the banner county of the state. It was very dry all the fall and a large acreage was sown, but the wheat plant is small. The winter has been very mild, with no more than 1½ inches of ice this winter. We had no rain till about the 14th of this month, and we had about 4 inches of snow the 19th, which makes the people feel more encouraged for a new crop, and everybody is predicting a mild winter. But after all, if it should be a mild February and give the wheat a good start to growing, then turn cold in March, it would kill a great deal of the wheat as I have seen done before. The situation is very dangerous."

It is stated that the total pack of sweet corn in 1888 was 3,491,474 cases of two dozen tins each, an increase over the pack of 1887 of 1,180,050 cases. This large gain is due to the multiplication of canning houses in the leading corn growing states, Illinois, Indiana and Iowa alone putting up about 1,000,000 cases, or nearly one-third of the supply.

SENSIBLE LOW-COST HOUSES HOW TO BUILD THEM



A large Atlas, giving illustrations and full descriptions of 56 desirable modern houses, costing from \$800 to \$7500. Every detail profusely illustrated, showing many valuable original ideas. Shows what to do and what not to do. Houses adapted to all climates described. The latest, best, and only cheap work published. Sent by mail on receipt of \$1.00. NATIONAL ARCHITECT'S UNION, PHILA., PA.

THE "HARLOW" Positive Feed Lubricators.

For Marine and Stationary Engines, Steam Pumps, Electrical and other Machinery.

MAXIMUM ECONOMY IN OIL. MARKED ECONOMY IN FUEL.

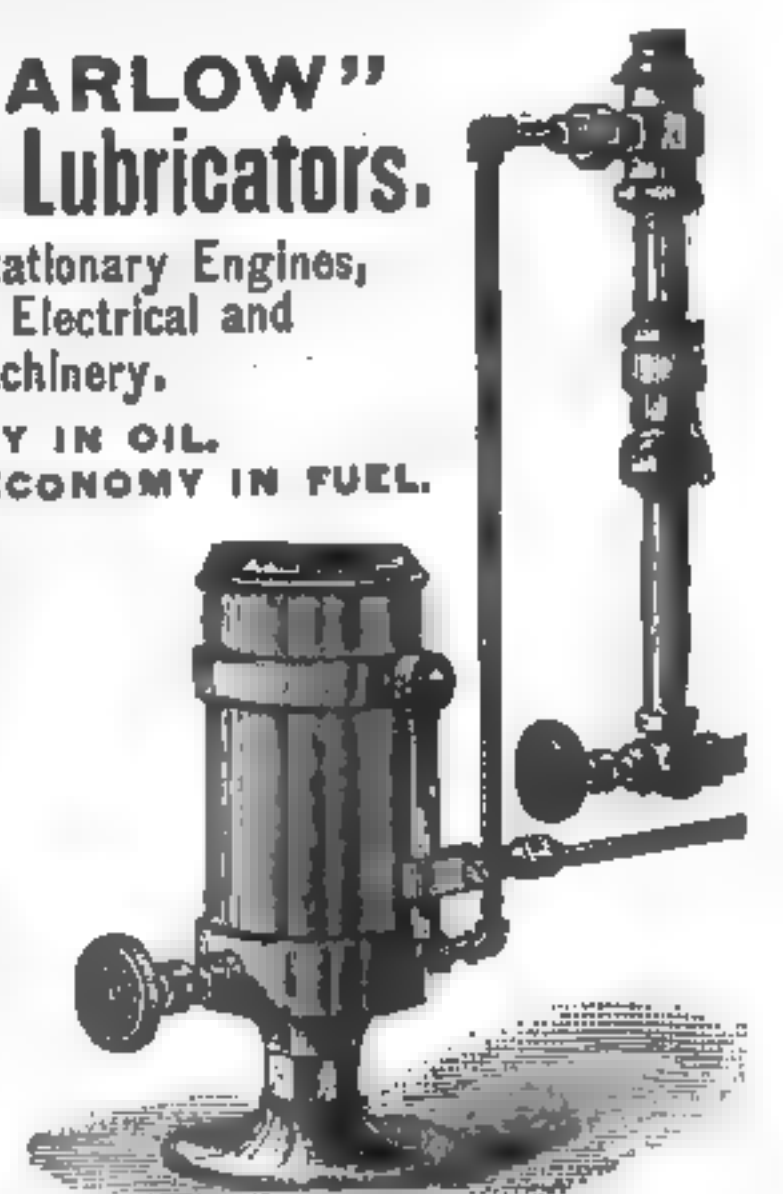
Not dependent upon or operated by Steam Pressure, Condensation or Gravity.

Not affected by changes of temperature.

BEING operated by some moving portion of the engine or machine to be lubricated, the "Harlow Lubricator" starts and stops with the engine or machine being lubricated, without requiring the slightest attention from the engineer or operator, always delivering the oil in any amount from a drop to a constant stream.

The cup can be filled at any moment while the engine or machine being lubricated is in operation, without causing any leakage either of oil or steam.

Harlow Lubricator Mfg. Co. BOSTON, Mass. U. S. A.



TRADERS & TRAVELERS
Accident Company
Benefits OF NEW YORK

\$5,000. for DEATH. \$5,000. for LOSS of LIMBS.
2,500. for LOSS of LIMB. 2,500. SIGHT
1,250. TOTAL DISABILITY. 650. ONE EYE.
25% WEEKLY INDEMNITY FOR 26 WEEKS.
ONE SET OF INDIVIDUAL REGISTRY PLATES INCLUDED.
4 QUARTERLY PAYMENTS, \$25. \$100
ANNUAL DUES, \$10. \$100

287 BROADWAY, N. Y.

"Cooper on Belting."

A Treatise on the Use of Belting for the Transmission of Power. With illustrations of approved and actual methods of arranging Main Driving and Quarter Twist Belts, and of Belt Fastenings. Examples and Rules in great number for exhibiting and calculating the size and driving power of belts. Plain, Particular and Practical Directions for the Treatment, Care and Management of Belts. Descriptions of many varieties of Beltings, together with chapters on the Transmission of Power by Ropes; by Iron and Wood Frictional Gearing; on the Strength of Belting Leather; and on the Experimental Investigations of Morin, Briggs, and others, for determining the Friction of Belts under different tensions, which are presented clearly and fully, with the text and tables unabridged. By JOHN H. COOPER, M. E. Second Edition. One vol., demi octavo. Cloth, \$8.50. Sent post-paid on receipt of price. Address,

McFAUL & NOLAN, BUFFALO, N. Y.

GIVES MORE POWER USING LESS WATER THAN ANY OTHER WHEEL.

THE OLD RELIABLE WATER WHEEL.

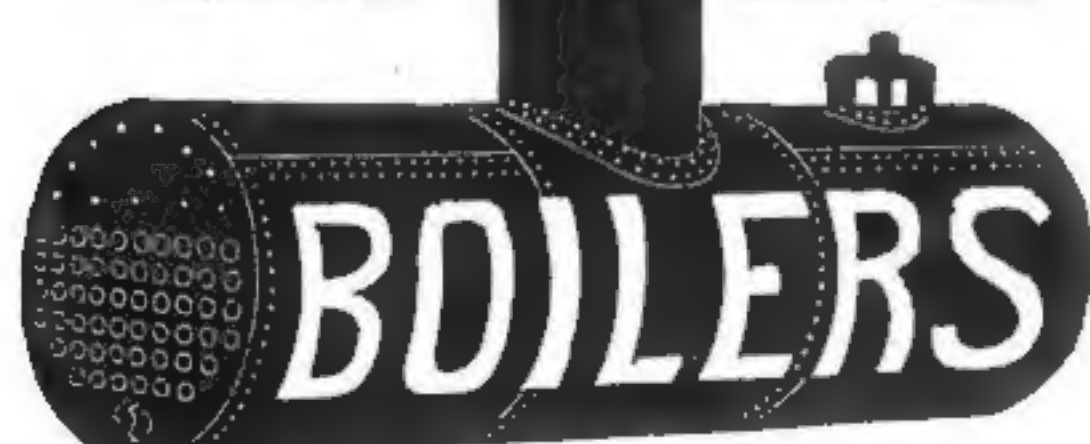
SEND FOR CATALOGUE.

JAMES LEFFEL & CO.
SPRINGFIELD, O., OR 110 LIBERTY ST., N. Y.



EAGLE IRON WORKS,
DETROIT, MICH.

MANFRS. OF HIGH GRADE



**HORIZONTAL, UPRIGHT
PORTABLE AND MARINE.**

Oil Tanks & Smoke Stacks,

HEAVY SHEET IRON WORK.

CORRESPONDENCE SOLICITED.

THE BEST AND CHEAPEST CORN AND COB CRUSHER IN THE WORLD.

All wearing parts cast of a steel mixture. Notice difference in construction. Most area where most work is done, where all other crushers have least area where most work is done. Low priced machinery is not the cheapest, considering durability and efficiency. Sent on 30 days' trial when satisfactory reference is furnished.

Please Send for Circulars.

R. C. McCULLEY, LANCASTER, PENN.

\$15 Will Buy the Best and Cheapest
CORN AND COB CRUSHER
IN THE WORLD!



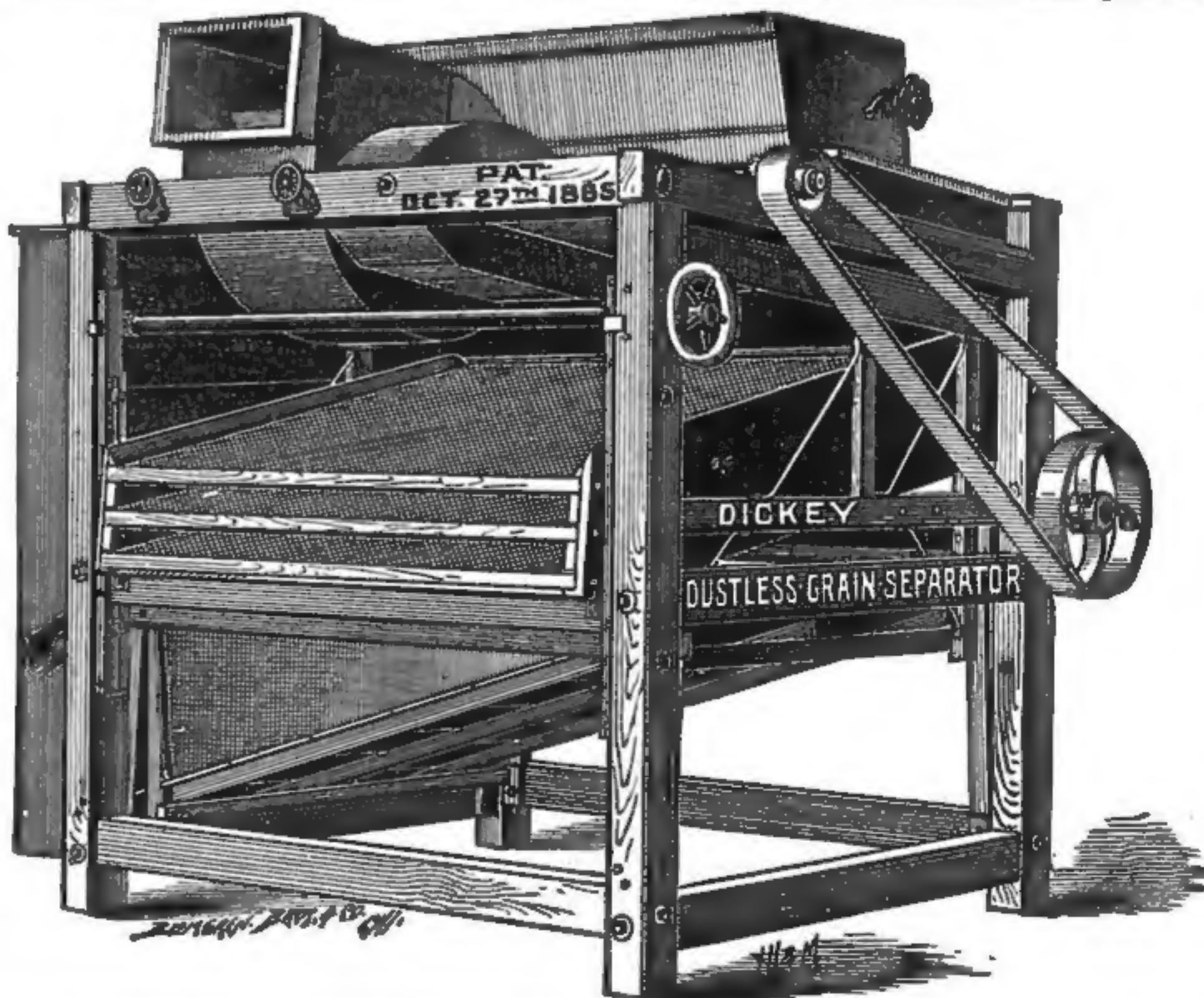
It can be driven either from above or below. Thousands of these Crushers are now in use throughout the United States and Canada, and are giving entire satisfaction. Send for circular, giving testimonials from millers who are using our Crusher, and know a good thing when they see it.

T. B. WOOD & SONS, CHAMBERSBURG, PA.

DICKEY DUSTLESS GRAIN AND FLAX SEPARATOR

This Separator is our latest and most perfect, and guaranteed to be the superior of any now on the market. This machine, as can be seen by the cut, is not a warehouse fanning mill with one patent attachment, but is a Dustless Separator, made for the express purpose of thoroughly cleaning and separating all kinds of grain in large quantities; its construction is such that the working machinery and weight is all within the parts or anchors.

WE CLAIM FOR IT SUPERIORITY.



WE CLAIM FOR IT SUPERIORITY.

We claim for it Superiority over everything of the kind made, in simpleness, durability, saving of power, capacity and cost of construction. Its height will accommodate any number of spouts from different points, without moving machine. They have a capacity from 700 to 1,500 bushels per hour. We also control exclusively the manufacture of the celebrated Dickey Giant, End and Side Shake, Warehouse Mills, that have attained such a world-wide reputation. Sent on approval to any reliable party. For full particulars address,

A. P. DICKEY MANUFACTURING CO., Successors to **DICKEY & PEASE, RACINE, WIS.**

GRAPHITE FOR LUBRICATION.

Lubrication with graphite, or "black lead," is now an accomplished fact. The application of graphite is simple. It is made by means of a brass box with grooves, the strips of brass and graphite being of about equal width. These grooves are filled with a composition consisting of 75 per cent. of graphite, which is pressed into the grooves and hardened by heat, so that the brass and composition become a solid mass and form a firm bearing for the full length of the box. Friction is caused because the two surfaces rubbing together can not be so highly polished as to eliminate the rough indentations or open seams in the metal. These act as the teeth of a saw, though to a much more limited extent, and under motion without lubrication the inequalities enlarge and produce friction. By the application of oil these inequalities are filled and the surface is made smooth enough to overcome the friction, the oil acting in small globules like rollers. As soon as the oil is worn out or dried up these inequalities in the surface of the bearing and box at once reappear and the friction is reproduced, so that a constant application of oil is necessary to keep a machine in successful motion. The reader will see that friction is overcome with oil by filling the grain of the iron, or the inequalities which remain, after a journal bearing has been highly polished.

The same result is accomplished by graphite. The graphite

box being composed of ribs of brass and graphite composition and the journal revolving on the same, the grooves of the iron or openings and uneven surfaces of the journal are filled with small particles of graphite and polished, leaving no uneven surfaces on the journal bearing or box to produce friction. When a journal is once polished with graphite but little more seems to be required, as graphite boxes have been in use for over four and a half years, where the speed is 1,000 revolutions a minute, running ten hours a day, which have never been oiled since their first starting. Thus it would seem that we have a box that requires no attention, being finished when first put on, and which when worn out can be readily replaced by a new one. The manner in which a graphite box does its work is well known. When the box is first put in it develops a high heat, which results from the uneven surfaces and from the fact that time is required for graphite to fill all the grain of the iron and polish the axle, and if time can not be given to accomplish this result, oil-holes can be provided for the boxes and bushings and a little oil applied until the axle is polished. The oil can then be withheld except in very severe places. The following claims are put forward: 1. The graphite bearings will run without oil when substituted for bearings running satisfactorily with oil. 2. They will, when a bearing surface is reached, run with diminished quantity of oil and without cutting when substituted for bearings which heat and cut with oil.



SPECIALTIES

ILLUSTRATED FOLDER "T" FOR THE HOLIDAYS. NOW READY.

Please write for a copy at once. Only mailed to customers and on application. This is the most complete and extensive list of specialties ever issued by us. Write at once and secure a copy.

THE H. J. DEAL SPECIALTY CO.
BUCYRUS, OHIO, U. S. A.

Chemical Fire Extinguisher Co.

38 & 40 LASALLE STREET,
CHICAGO, - - ILL.

MANUFACTURERS OF THE

Only Chemical Automatic Fire Extinguisher Made.

No Freezing; No Corroding; No Leaking.
Cheapness and Absolute Reliability and Reduction in Cost of Insurance. We also manufacture everything in the line of Chemical Extinguishers, from a full 100 gallon engine to a quart Hand Fire Extinguisher, of the best and most approved kind. One gallon of our chemical is equal to 500 gallons of water.

SEND FOR ILLUSTRATED CATALOGUE.

"DE MAN WOT KNOWS IT ALL

*is allus a-makin' change, a-
buyin' ob experience."*

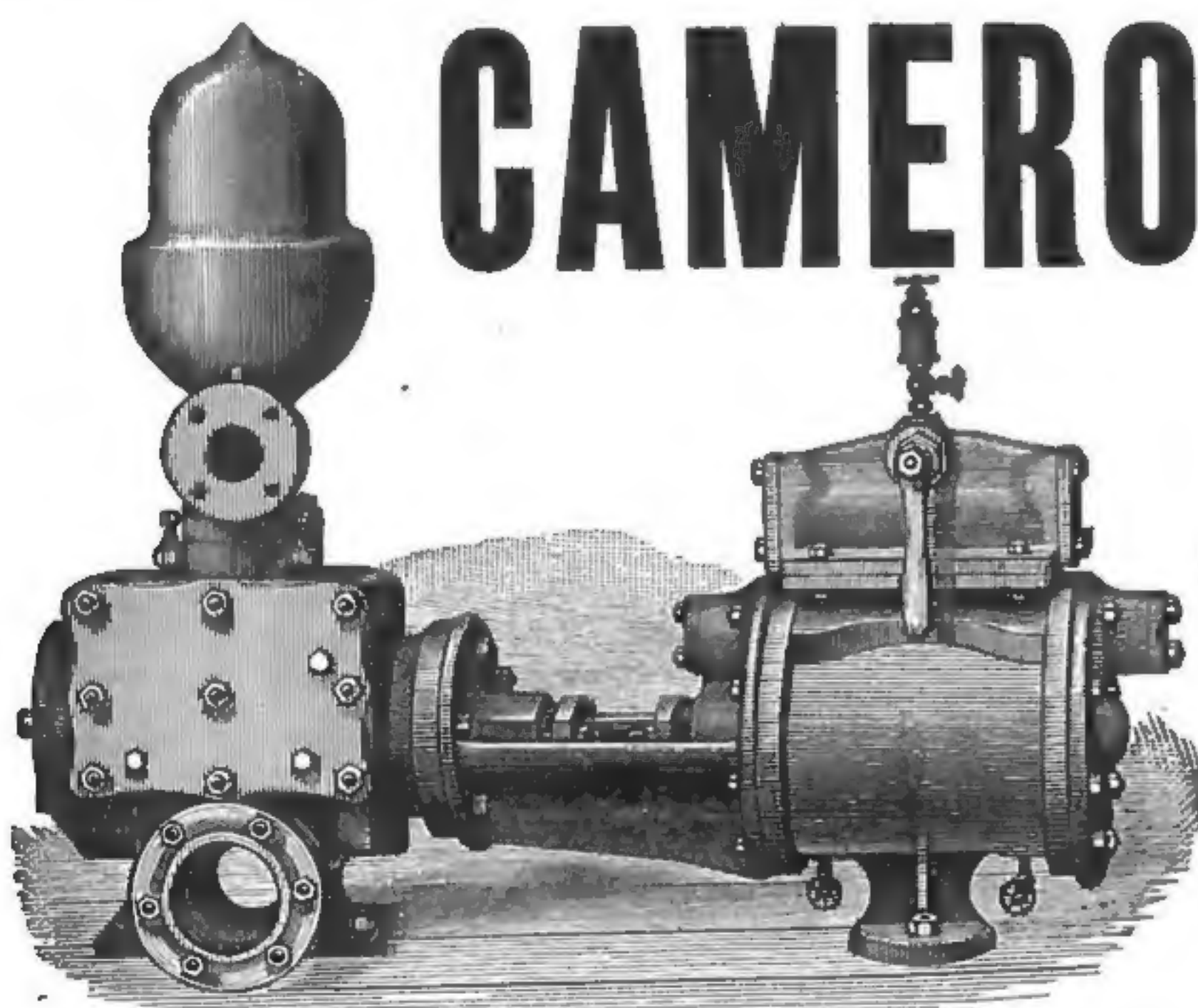
The man who does not think that he "Knows it All" about

Pumps, Steam Engines and Boilers
Can find out a great deal about them in

GRIMSHAW'S PUMP CATECHISM - \$1.00
STEAM ENGINE CATECHISM - - - 2.00
BOILER CATECHISM - - - - - 2.00
PREPARING FOR INDICATION - - 1.00

BY MAIL POSTPAID.

McFaul & Nolan, - Buffalo, N. Y.



CAMERON STEAM PUMP

THE STANDARD OF EXCELLENCE.

SIMPLE! COMPACT! DURABLE!

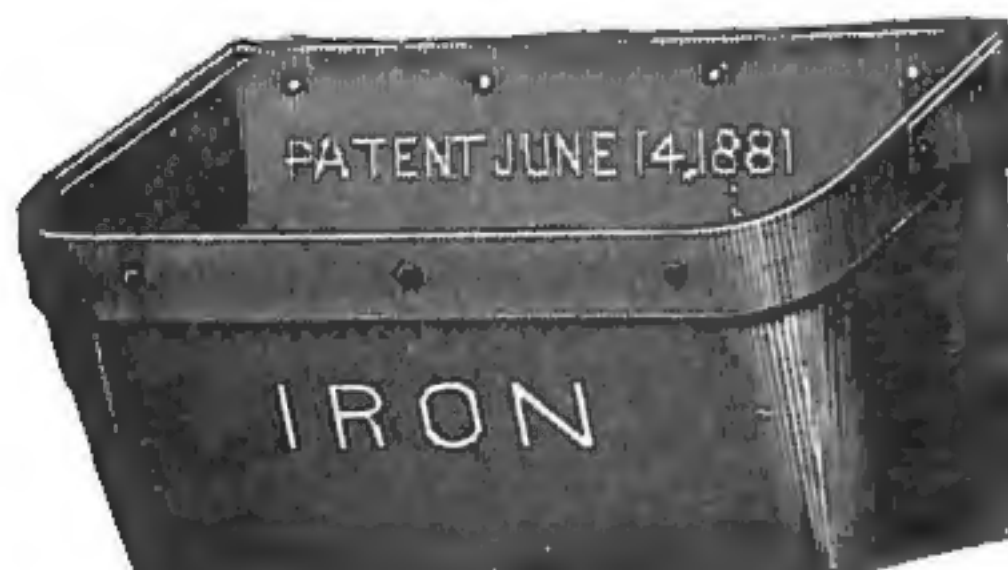
"NO OUTSIDE VALVE GEAR."

Steam, Air & Vacuum Pumps in Every Variety

FOR ILLUSTRATED CATALOGUE ADDRESS

THE A. S. CAMERON STEAM PUMP WORKS

Foot of East 23d Street. - New York.



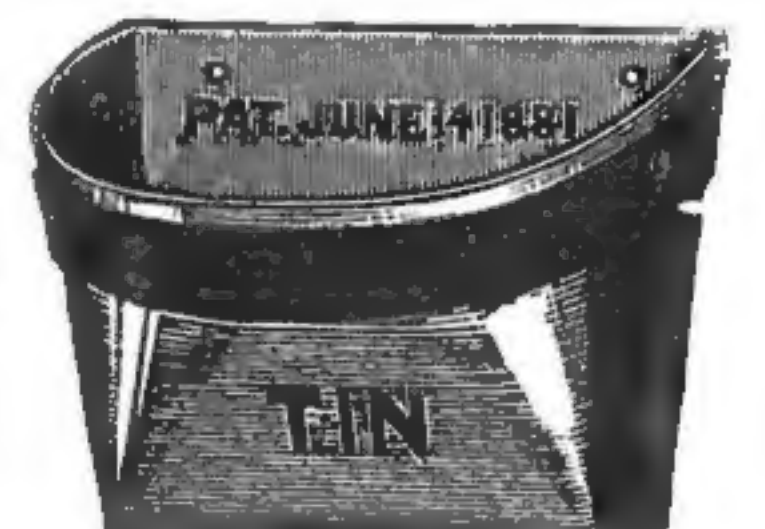
Made of sheet steel, with heavy band.

BOSS & ELEVATOR & BUCKETS.

If you are interested ask for Prices. Manufactured only by

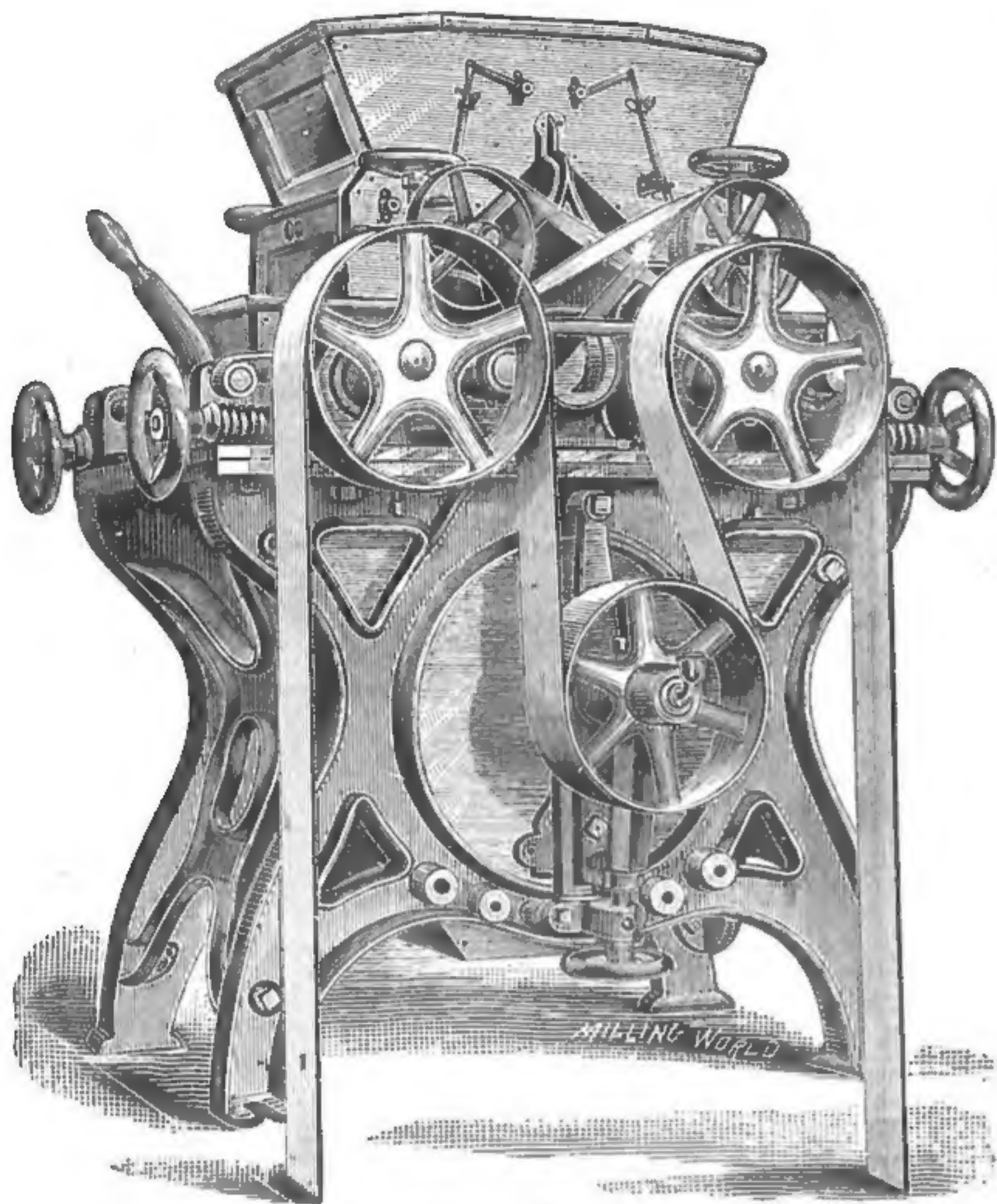
W. P. MYER, INDIANAPOLIS, IND.

16, 18 AND 20 EAST SOUTH STREET.



Made of tinued steel plate, with iron band

JOHN HUTCHISON MFG. CO., Mill Builders and Mill Furnishers.



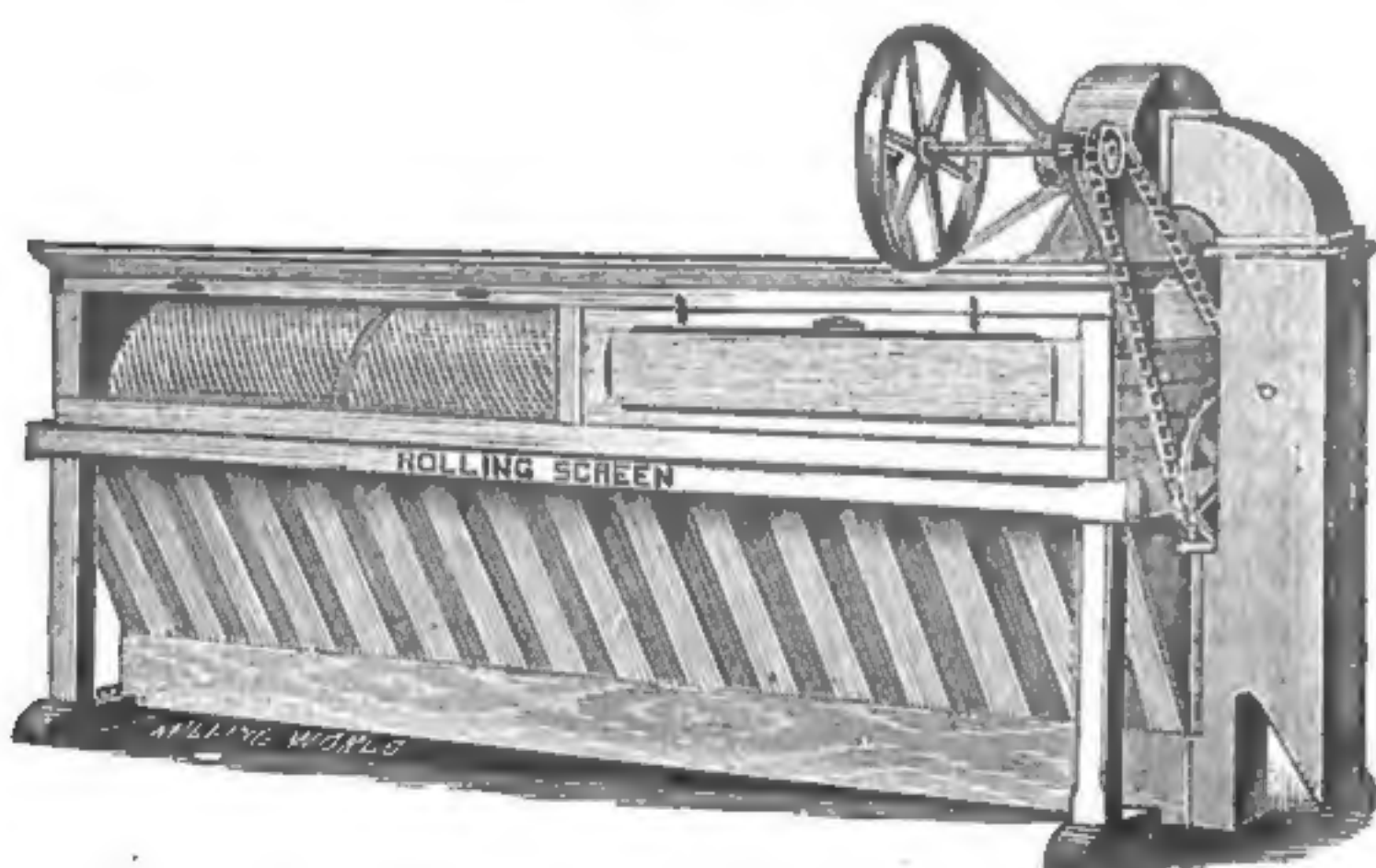
"The Rickerson." The original six inch 4 Roller Mill. We now own the patents on this mill and after greatly improving the mill manufacture them in four sizes:

6x12 inch.

6x18 inch.

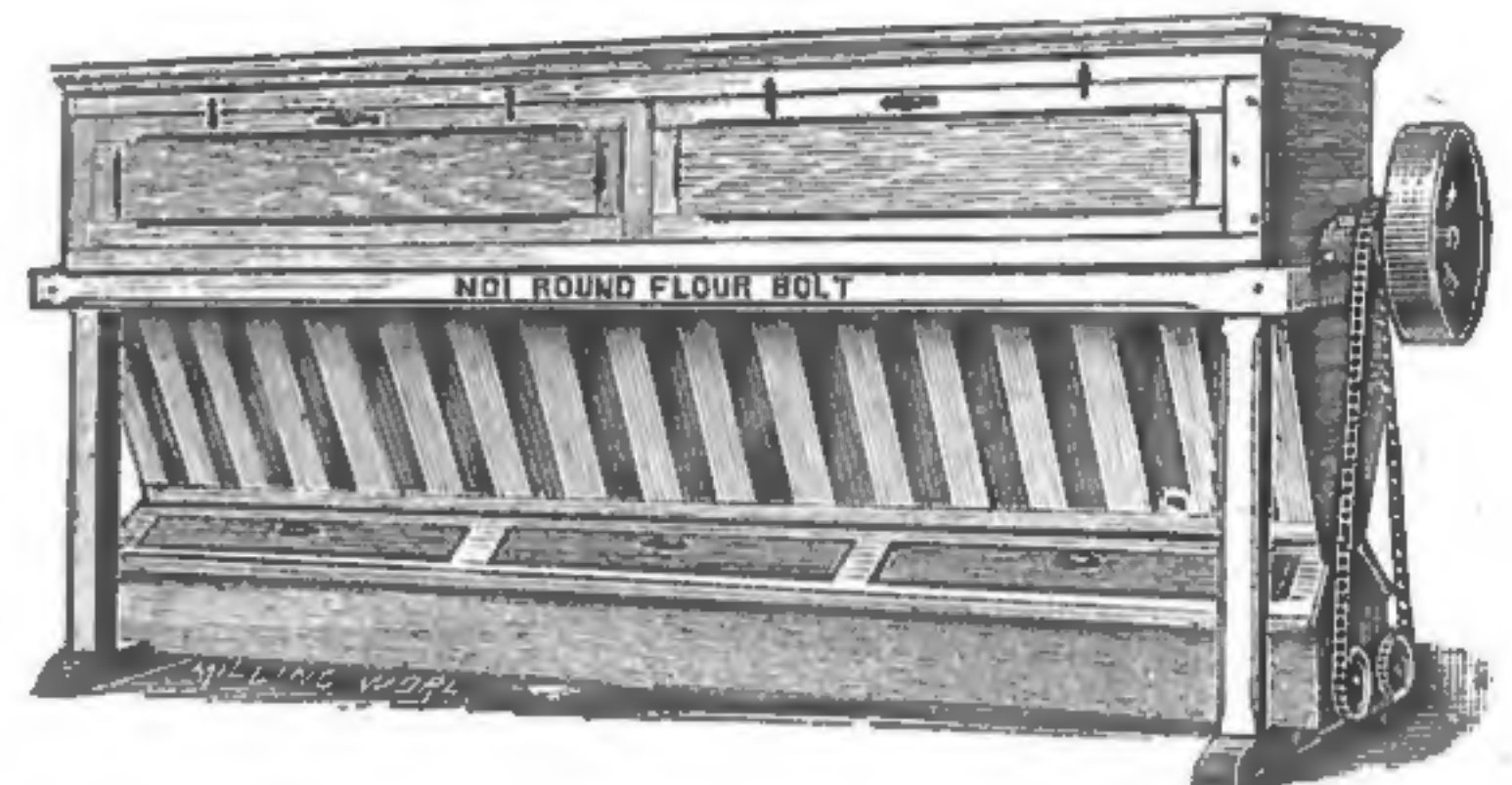
6x15 "

6x20 "

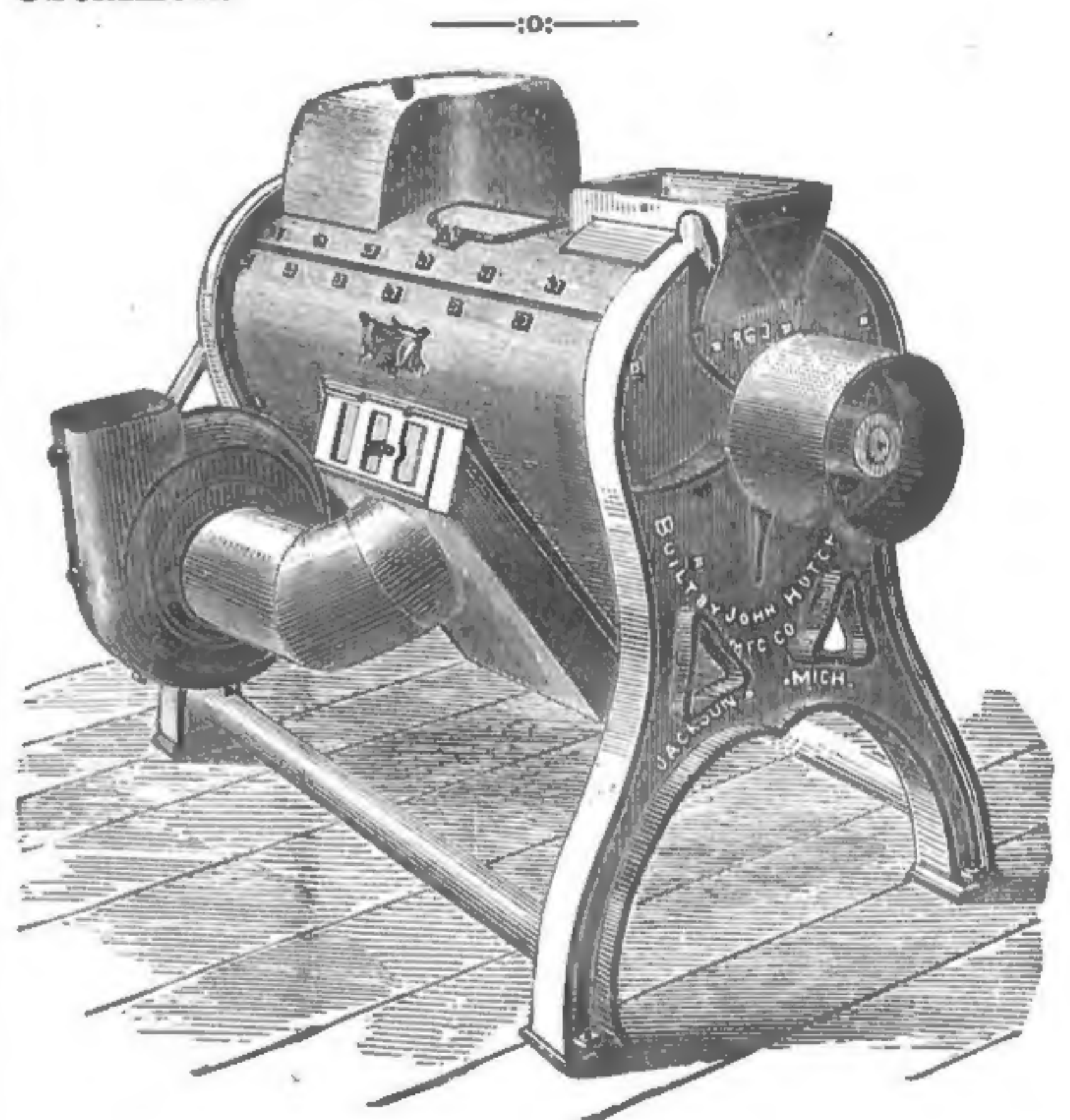


The above cut represents our New Rolling Screen, which is absolutely dustless and has as much scouring qualities as any two scouring machines now being made.

Send for Estimates for Our Full Roller Mills of any Capacity.



The above cut shows our New Round Slow Running Flour Bolt. We also build a Cylinder or Round Scalping Reel and we have lately built a number of new mills of medium capacity, using our Roller Mills, our Round Flour Bolts and Scalping Reels, getting better results than is usually obtained.



Hutchison's New Dustless Iron Corn Sheller, especially adapted for Mill and Elevator use.

—:ADDRESS ALL CORRESPONDENCE TO:—

John Hutchison Mfg. Co.

JACKSON, . . MICHIGAN.



ELEVATOR BUCKET.

PLEASE NOTICE.

Our patents not only cover Seamless, Drawn, Stamped, Pressed or Forged Elevator Buckets; but also Pre-Date and Cover Round-Cornered Elevator Buckets when made Seamless, and are the Only patents ever issued in the World for a Pressed, Stamped, Drawn or Forged Seamless Elevator Bucket.

THE AVERY STAMPING CO.,
Successors to The Avery Elevator Bucket Co.,
Cleveland, Ohio, U. S. A.



CLAY BUCKET.



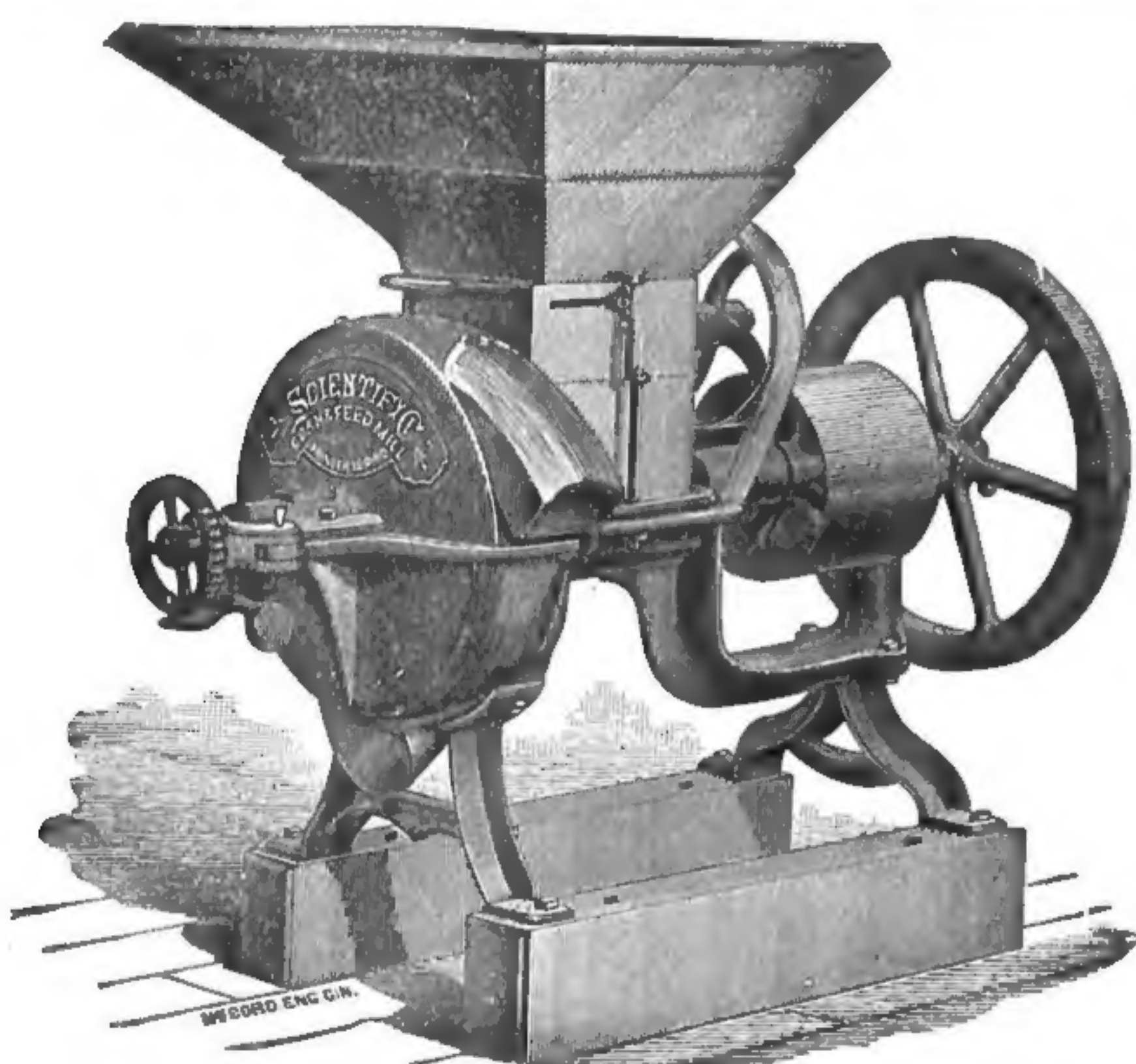
SELF-TRAMMING
PORTABLE MILL
BEST GRINDING MILL MADE.
BOLTING CLOTH

CLOTHS MADE UP TO FIT ANY SIZE REEL.

BURR AND ESOPUS
MILLSTONES.

SPINDLES, PULLEYS, MILL PICKS, BELTING, ELEVATOR BUCKETS
AND GENERAL MILL FURNISHINGS. FOR CATALOGUE
AND PRICES, ADDRESS

SAMUEL CAREY, 17 BROADWAY, NEW YORK



—THE SCIENTIFIC—
GRINDING MILL.

POSITIVELY THE BEST MILL ON EARTH.

GRINDS PERFECTLY, EAR CORN, SHELLED CORN,
AND ALL GRAINS.

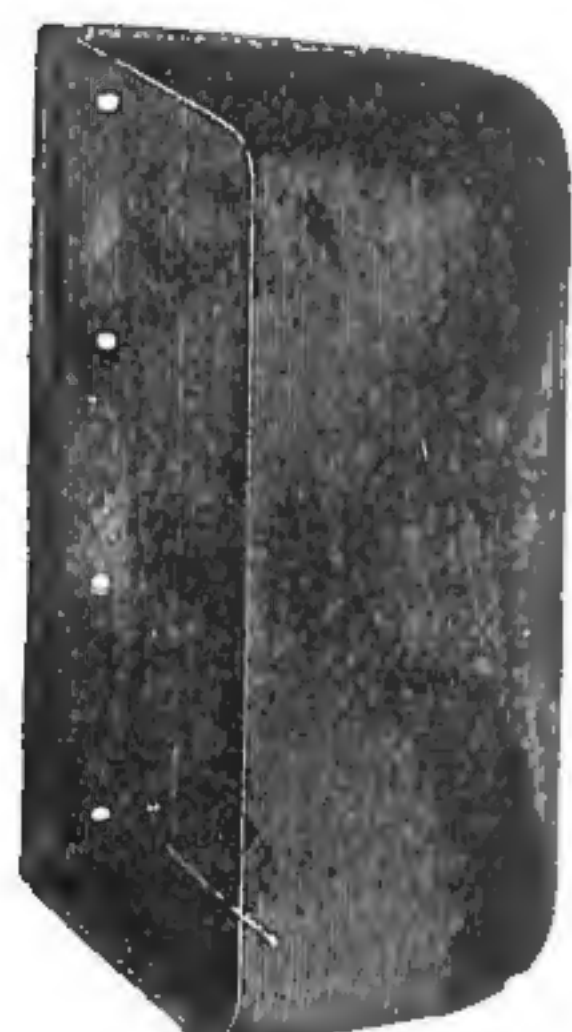
GRINDING PLATES A SPECIAL METAL

*Hard as Steel, Guaranteed to Grind from Five to Eight
Thousand Bushels before wearing out.*

SEND FOR ILLUSTRATED CATALOGUE, PRICES, ETC.

THE FOOS MFG. CO.

SPRINGFIELD OHIO.

**STILL ON TOP.**

Perhaps the **HIGHEST COMPLIMENT** that could be paid the "Salem" bucket is the fact that during the past few years ITS SHAPE HAS BEEN SO CLOSELY IMITATED by other manufacturers as to infringe our patented rights, but experience reveals the **IMPERFECTIONS OF IMITATIONS**, and we therefore take it as a **FURTHER COMPLIMENT** to the "SALEM" bucket that some of its old patrons who were *Induced to Try the Imitations have now Returned to the Salem Bucket, thereby Acknowledging it to be the Most Satisfactory.* Don't be deceived by other makes of buckets that are claimed to be "Just as Good." Insist upon having the **ORIGINAL AND RELIABLE SALEM BUCKET.** All legitimate Salem buckets are plainly marked with the word

SALEM

W. J. CLARK & CO., SOLE Manufacturers **SALEM, OHIO.**

THORNBURGH & GLESSNER, General Agents, CHICAGO, ILL.